TWENTY-FOURTH ANNUAL REPORT

OF THE

BOARD OF MANAGERS

OF

RHODE ISLAND STATE COLLEGE,

MADE TO THE

General Assembly at the January Session, 1912.

PART III—CATALOGUE.

Part I—General Report—printed under separate cover.

Part II—Experiment-Station Report—printed under separate cover.

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1912.

Rhode Island State College.

Corporation.

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Report.

To His Excellency Aram J. Pothier, Governor, and the Honorable General Assembly of the State of Rhode Island and Providence Plantations, at the January Session, 1912:

I have the honor to submit herewith Part Three of the Twenty-Fourth Annual Report of the Board of Managers of Rhode Island State College, as required by law.

CHARLES DEAN KIMBALL,

President of the Board of Managers of Rhode Island State College

Faculty and Other Officers.

HOWARD EDWARDS, A. M., LL. D., ✓

PRESIDENT,

Professor of Political Economy and Social Science.

HOMER JAY WHEELER, Ph. D., Sc. D.,

Professor of Geology.

HARRIET LATHROP MERROW, A. M., ✓

Professor of Botany and Secretary of the Faculty.

VIRGIL LOUIS LEIGHTON, Ph. D., ✓

Professor of Chemistry.

JOHN BARLOW, A. M., ✓

Professor of Zoölogy.

MARSHALL HENRY TYLER, B. S., ✓

Professor of Mathematics.

GEORGE EDWARD ADAMS, B. S., ✓

Chief of Department of Agriculture and Professor of Agronomy.

ANDREW EDWARD STENE, M. S., ✓

Superintendent of College Extension.

SAMUEL HARVEY WEBSTER, B. S., ✓

Professor of Civil Engineering.

ROYAL LINFIELD WALES, B. S., ✓

Chief of Department of Engineering and Professor of Mechanical Engineering.

BURT LAWS HARTWELL, Ph. D., ✓

Professor of Agricultural Chemistry.

††HELEN BISHOP THOMPSON, M. S.,
Professor of Home Economics. ✓

LEONARD PERLEY DICKINSON, B. S.,
Professor of Physics and Electrical Engineering. ✓

FRANK K. SECHRIST, PH. D.,
Professor of English and Modern Languages. ✓

FRED SILVER PUTNEY, M. S.,
Professor of Animal Husbandry. ✓

*EDWARD N. MACON,
Captain, United States Army, Retired.
Professor of Military Science and Tactics.

†WILBUR EGBERT DOVE,
Captain, United States Army, Retired.
Professor of Military Science and Tactics.

WILLIAM SAWYER SPENCER, B. D.,
Assistant Professor of Argumentation and Oral Expression.

GEORGE ROBERT COBB, B. S.,
Assistant Professor of Horticulture. ✓

THOMAS CARROLL RODMAN,
Instructor in Woodwork. ✓

MABEL DEWITT ELDRED, B. S.,
Instructor in Drawing. ✓

HOWLAND BURDICK, B. S.,
Instructor in Dairying.

DANIEL JOSEPH LAMBERT,
Instructor in Poultry Keeping.

JOHN RALEIGH ELDRED, B. S.,
Instructor in Mechanical Engineering.

FRANCIS HERVEY SMITH, M. S.,
Instructor in Chemistry.

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*Relieved, December 31, 1911.
†Detailed, January 1, 1912.
†† Resigned, to take effect September 1, 1912.

FLORENCE H. MYRICK, B. S.,

Instructor in Languages.

HERBERT SETON EAMES, B. S.,

Instructor in Mechanical Engineering.

GEORGE EVERETT PEASLEE,

Instructor in Electrical Engineering.

ERNEST KINSEY THOMAS,

Instructor in Nature Study and School Gardening, Extension Department.

FRANK HARTWELL BILLS, B. S.,

Instructor in Mathematics and Civil Engineering.

PAUL CLOKE, E. E.,

Instructor in Physics and Electrical Engineering.

NELLIE ARMSTRONG HARRALL, B. S.,

Head of Women's Dormitory and Instructor in Physical Training for Women.

HERBERT J. MILES, M. F.,

Instructor in Forestry.

GLADYS ELSIE BURLINGAME, A. B.,

Librarian.

FREDERICK JOSEPH GODIN,

Instructor in Horticulture.

LUCY COMINS TUCKER,

Registrar and Secretary to the President.

ALICE ELIZABETH BEALE,

Bursar.

JENNIE CRANDALL THOMPSON,

Bookkeeper

GERTRUDE MABEL BURDICK,

Bookkeeper.

Dr. Tucker.

Lectures.

Poultry Course.

E. W. Brown, Old Mystic, Conn., MARKETING POULTRY PRODUCTS. BREEDS. Two lectures.

F. L. Sewall, Niles, Mich., STANDARD TYPES. Two lectures. Illustrated.

John H. Robinson, Boston, Mass., PERMANENT POULTRY KEEPING. ILLUSTRATED. FEEDING. HOUSING. Three lectures.

Henry D. Smith, Rockland, Mass., CAPONS AND CAPONIZING. Two lectures and demonstration.

Samuel Knowles, Lexington, Mass., POULTRY KEEPING AS AN AVOCATION.

E. Collins Tefft, Wakefield, R. I., POULTRY AND FRUIT CULTURE. Two lectures.

Thomas F. Dexter, Providence, R. I., MATING AND BREEDING LEGHORNS.

Carroll H. Magoon, Kingston, R. I., THE CHICKEN DIARRHEAS.

George A. Peters, Shirley, Mass., FEEDING LAYING HENS. INCUBATION. BROODING. Three lectures.

Alfred R. Lee, Washington, D. C., FATTENING POULTRY. PACKING HOUSE METHODS OF HANDLING POULTRY AND EGGS. Two lectures.

George V. Smith, West Willington, Conn., POULTRY AS A FARM CROP.

Farmers' Week.

C. D. Jarvis, Agricultural Experiment Station, Storrs, Conn., RENOVATION OF OLD APPLE ORCHARDS.

F. H. Stadtmueller, Elmwood, Conn., FARM ACCOUNTS.

H. W. Collingwood, New York, N. Y., THE AGRICULTURAL PRESS.

Experiment-Station Staff.

Howard Edwards, M. A., LL. D.	President of the College. *Ex-officio* Member.
H. J. Wheeler, Ph. D., Sc. D.	Director; Agronomy. ✓
Burt L. Hartwell, Ph. D.*	Chemistry.
George E. Adams, B. S.	Horticulture.
✓ Philip B. Hadley, Ph. D.	Biology.
S. C. Damon, B. S.	Assistant, Agronomy.
John E. Seabright, B. A.	Assistant, Chemistry.
L. F. Whipple	Assistant, Chemistry.
Frederick S. Hammett, A. B., M. Sc.	Assistant, Chemistry.
Robert A. Lichtenthaeler, M. S.	Assistant, Chemistry.
F. R. Pember, M. S.	Assistant, Plant Physiology.
F. J. Godin	Assistant, Floriculture.
Carroll H. Magoon	Poultryman.
Nathaniel Helme	Meteorology.
E. Elizabeth Meears	Stenographer and Librarian.
Eleanor E. Gould	Stenographer.
Eva Barns, A. B.	Stenographer and Accountant.
M. Alice Kimball	Stenographer.
Dorothy Walcott Caldwell	Assistant, Biology.

The publications of the Station will be mailed free, upon request, to residents of Rhode Island. Suggestions as to how the station can aid the state are gladly received. Visitors are always welcome. Railway station, telegraph, express, and post-office—Kingston, Rhode Island. Long distance telephone, Narragansett Pier Exchange.

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*In charge of experiments in plant physiology and animal feeding.

College Calendar.

Tuesday, September 17, 1912 .... Chapel Exercises, 8:20 A. M.

Registration, examination of entering and conditioned students, 9:00 A. M.

Wednesday, September 18 .... Recitations begin, 8:20 A. M.

Saturday, October 12 .... Columbus Day.

Tuesday, November 5 .... Election Day.

Wednesday, November 27, 12:00 M.
Monday, December 2, 8:20 A. M. } .... Thanksgiving Recess.

Friday, December 20, 4:35 P. M.
Thursday, January 2, 1913, 8:20 A. M. } .... Christmas Recess.

Tuesday, February 4, 4:35 P. M .... First Term Ends.

Wednesday, Thursday, Friday, February 5, 6, 7 .... Farmers' Week.

Monday, February 10, 8:20 A. M .... Second Term Begins.

Registration, 9:00 A. M. Recitations begin 1:00 P. M.

Saturday, February 22 .... Washington's Birthday.

Friday, March 21 .... Good Friday.

Friday, May 9 .... Arbor Day.

Friday, May 30 .... Memorial Day.

Sunday, June 15 .... Baccalaureate Address.

Thursday, June 19 .... Commencement Exercises.

CALENDAR.

1912.

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1913.

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RHODE ISLAND STATE COLLEGE.

Foundation.

The college is one of the so-called land-grant colleges. Of the purpose of these institutions Senator Morrill, the author of the national legislation which brought them into existence in all the states, says:

"The fundamental idea was to offer an opportunity in every state for a liberal and larger education to large numbers, not merely those destined to sedentary professions, but to those needing higher instruction for the world's business, for the industrial pursuits and professions of life." Again he says: "It was to give a chance to the industrial classes of the country to obtain a liberal education, something more than what was bestowed by our universities and colleges in general, which seemed to be based more on the English plan of giving education only to what might be called the professional classes, in law, medicine, and theology."

The college has also a well-defined investigative purpose in its experiment station, organized as a department of the college and endowed by the general government.

The resources of the college are as follows:

(1) The interest on $50,000, which was the net amount received by the state from the sale of its scrip for 120,000 acres of land, granted by the general government in 1862. This fund came to the college in 1894.

(2) The annual appropriation of $15,000 from the general government, under what is known as the Hatch Act of 1887. This fund is exclusively for experimental purposes.

(3) The annual appropriation of $25,000 from the general government under the second Morrill Act of 1890. This fund is for teaching the subjects distinctly named and specified in the act, as

follows: "to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

(4) The funds coming from the general government to the state under the Adams Act of 1906, yielding each year $15,000. This fund is exclusively for experimental purposes.

(5) The funds from the general government under the Nelson Amendment of 1907, amounting yearly to $25,000. This amendment is simply an extension of the 1890 Morrill grant and carries the same restrictions.

(6) The annual maintenance fund from the state, of $25,000, used for all the purposes for which the funds of the general government can not be used: *e. g.*, for extension work; for executive and administrative work; for heating, lighting and maintenance of buildings; for the teaching of modern language other than English; for the teaching of history and civics; for student labor, maintenance of grounds, roads, etc.

The college was founded in 1888 as an agricultural school. In 1892 it was incorporated as a college. The courses of study have been on a college basis since 1892; the requirements for a degree were raised in 1898; and the curriculum was again thoroughly revised during the years 1906–07 and 1907–08. The course in home economics for young women was introduced in 1908.

Object and Organization.

The function of the Rhode Island State College is to aid in fostering the industrial life of the state, at least in so far as pertains to agriculture, manufactures, transportation, and home-making. This it does in three ways: 1. By the investigation and discovery of new truth more or less directly applicable in the industries. 2. By the direct distribution of industrial information to the people. 3. By the organization and administration of definite courses of instruction designed to fit young men and young women for effective work in the industrial pursuits.

The first of these duties is performed by the

Experiment Station,

for a description of the work of which the reader is referred to the report of the director, constituting Part II of the report of the Board of Managers for the current year. A statement of its staff organization may be found on page 9 of this catalogue.

The experiment station takes part, also, in the second phase of the college activities, by distributing its bulletins to all that desire and apply for them. In order, however, more fully and directly to bring the college and its work into touch with the people, a

College Extension Department

has been organized, and is in active operation.

The purpose of this department is to carry the instruction of the college to those who cannot come to it for study. Whenever necessary and possible, visits will be made to any part of the state to examine farms, orchards, and gardens; to identify injurious insects or plant diseases, or give instruction in regard to methods of treatment; or to examine soils with a view to suggesting remedies for lack of fertility. General plans for laying out farms and for carrying out the details of any farm operation will be given the fullest consideration. The college is available for consultation at any time in regard to any problem of the farm, garden, or orchard. The fullest correspondence is invited, and conscientious consideration will be given to every letter received. In conjunction with this phase of the work, popular bulletins are issued from time to time, which endeavor to present the gist of agricultural information on various topics without the uninteresting detail of the regular experiment-station bulletin.

Whenever possible, arrangements will be made for demonstrations or lectures by members of the college faculty and experiment-station staff when called for by any agricultural meeting or neighborhood gathering. A number of lectures on various subjects has been prepared, which can be secured on short notice by any gathering or organization within the state. These lectures are free, the only charge being the traveling expenses of the speaker. A complete list of the lectures, together with such other information in regard to them as may be of interest, has been prepared and may be obtained by sending a postal-card request to the department.

An important part of this extension work is to be the encouragement of home study and the conducting of correspondence courses. For the present, time and funds will not permit the carrying out of this plan, but advice will be given to any person wishing to take up home study regarding courses of reading, books, and other literature which may be necessary in connection with such work.

Under the direction of the state commissioner of public schools, books on agriculture, home economics, and related subjects, have been purchased, and, together with a selected list of bulletins and reports, have been made up into a traveling library to be sent out over the state. The demand for this library has been so great that Commissioner Ranger has recently purchased books for four more libraries, which are now ready for distribution. If these are not sufficient, books for additional libraries will be purchased as the demand increases.

The Extension Department aims to encourage nature study, school gardening, and elementary agriculture, and for this purpose maintains the following lines of extension work:

1. Nature Study.—This is encouraged through the publication of a little leaflet called the Nature Guard, and the organization of boys and girls in the schools and elsewhere into bands called Nature Guard bands, the purpose of which is to awaken in its members a livelier interest in the things of outdoor life. It endeavors to stimulate the powers of observation and lay the foundation for a simple, rational education which shall give the individual a love for nature and a sympathy with his environment and furnish him with a means of making life more useful and more enjoyable, whether lived in the country or in the city.

2. School Gardens.—The extension department endeavors to aid schools and organizations in carrying on children's gardens. An instructor is employed who gives a large part of his time to this work and who gives the children direct personal instruction in methods of preparing the ground, planting, cultivating, and harvesting garden crops.

Home gardens are also encouraged, and advice given through correspondence and by circulars about the best methods of cultivating garden crops. At the suggestion of the department, the Washington County Agricultural Society and the Newport County Agricultural Society will offer prizes for exhibits from children's gardens, and for seed and plant collections.

3. ELEMENTARY AGRICULTURE.—As an aid to the introduction of elementary agriculture in the public schools, the department has undertaken to promote, in coöperation with various other educational and agricultural organizations in the state, a boys' corn growing contest. A premium list, for which the Board of Agriculture, the college, and a number of other organizations, business firms, and individuals, have provided prizes, has been issued, also a bulletin giving methods of growing and exhibiting corn. A state exhibition, for which the State Horticultural Society will provide space, will be held in the autumn. Granges, church organizations, Y. M. C. A.'s and schools have been asked to aid in forming boys' clubs, and in addition, where clubs cannot well be formed, individuals have been encouraged to take part in the contest.

Further notes in regard to this work are given in leaflets and circulars issued by the extension department, and correspondence from anyone who may be interested in regard to the same is invited.

The College as an Educational Agency.

In its third form of activity, the purpose and work of the Rhode Island State College is to give college training and culture to young men and young women, not in spite of, but through and with vocational studies. Its courses are intended, first of all, to make the student a self-supporting unit in society, a positive force for social advancement, able and willing not only to maintain himself, but also to carry something of the common social burdens that always weigh upon the thoroughly efficient worker.

I. THE FOUR-YEAR COURSES.

To this end certain college courses, intended to fit men and women for efficiency and leadership in well-defined life-activities, have been prepared. These courses are all founded upon training in mathematics, pure and applied; the English language as a means of intercommunication; and the sciences that deal with matter, force, and life as applied more directly to agriculture, the mechanic arts, and home economics. In the pursuit of these vocational studies, the effort is to accumulate an array of knowledge that, in the activities of industrial life, must be always practically serviceable, and, at the same time, to gain a disciplinary training both of brain and of muscle and nerve that make for practical effectiveness. These courses, moreover, recognizing that a college course should include not only intellectual training and the knowledge and skill requisite for bread-winning, but also preparation for citizenship, for moral and social life, have intertwined with the vocational work and study previously mentioned, the subjects that most directly make for culture and morality—history, economics, literature, languages, ethics, psychology, and sociology. These are ranked as of equal importance with the bread-winning studies.

The college courses just discussed are four years in length, and base themselves directly on the work of the four years of the high schools. They thus become an integral part of the school system of the state. Young men and young women, citizens of the state and having requisite high-school training, are admitted to these courses without charge for tuition.

The four-year courses thus offered are the agricultural course, the engineering course, the teachers' course in applied science, and the course in home economics.

The Agricultural Course.

The agricultural course is intended to give thorough preparation for taking charge of and operating a piece of landed property. Its work is centered around instruction and practice in horticulture, general farming, and animal husbandry (more especially as applied to dairying and the poultry industry). The course consists of practical work combined with thorough study of the sciences bearing directly on such work, viz.: botany, chemistry, geology, zoölogy, anatomy, physics, and entomology. In addition, it embraces the culture and mental discipline arising from the study of mathematics, English composition and rhetoric, history, drawing, modern languages, economics, and English literature. The course is planned to give the student a full and rounded development as worker, as citizen, and as man.

All agricultural students will follow the same work in the first three years; but, at the beginning of the Senior year, with the required work for all students in the course, three optional lines of work are offered, one of which must be selected by the student and followed until graduation. The three lines offered are agronomy, horticulture, and animal husbandry. No option and no subject will be given for which a number of students sufficient to warrant giving it has not applied. The tabulated course follows:

Freshman Year.

FIRST TERM.	CREDITS.*	SECOND TERM.	CREDITS.
Rhetoric and Composition (English I)	3	Rhetoric and Composition (English I)	3
German or French (I or II)	3	German or French (I or II)	3
Algebra (Math. I) Trigonometry (Math. II)	5	General Chemistry and Qualitative Analysis (Chem. II)	3[1½]
General Chemistry (Chem. I)	2[1½]	General Botany (Botany I)	1 [2]
General Botany (Botany I)	1 [2]	Stock Judging (An. Husb. I)	[2]
Propagation of Plants (Hort. I)	1 [1]	Breeds (An. Husb. III)	2
Drawing, Pencil (Fr. Dr. II)	[1]	Poultry (An. Husb. XII)	[1]
Drill (Mil. Sci. and T. I)	[1]	Spraying and Pruning (Hort. IV)	1 [1]
Theory (Mil. Sci and T. II)	1	Drill (Mil. Sci. and T. I)	[1]
		Theory (Mil. Sci. and T. II)	1

21½ 22½

Sophomore Year.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Newspaper Work (English II)	1	Argumentation (English III)	1
Interpretive Reading (Oral Expr. I)	1	Debating (Oral Expr. II)	1
German or French (II)	3	German or French (II)	3
Qualitative Analysis (Chem. III)	[3]	Organic Chemistry (Chem. IV)	3 [1]
Economic Botany (Botany II)	1 [2]	Descriptive Physics (Physics I)	5
General Zoölogy (Zoöl. I)	2 [2]	Physiology (Zoöl. III)	3 [1]
Forage Plants (Agron. II)	2	Geology (I)	2
Vegetable Gardening (Hort. II)	2	Drill (Mil. Sci. and T. I)	[1]
Surveying (Civ. Eng. I)	1 [2]		
Drill (Mill. Sci. and T. I)	[1]		

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Junior Year.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Principles of Criticism (English IV)	4	Debating (Oral Expr. III)	1
Debating (Oral Expr. III)	1	Industrial History (History I)	4
Agricultural Chemistry (Chem. XIV)	3 [1]	Forestry (Botany IV)	2
Soils and Fertilizers (Agron. III)	4[1½]	Economic Entomology (Zoöl. IV)	3 [1]
Dairy Practice (An. Husb. VII)	1[1½]	Farm Crops (Agron. IV)	3 [1]
Fruit Culture (Hort. III)	2	Farm Management (Agron. VII)	2
Drill (Mil. Sci. and T. I)	[1]	Farm Machinery (Agron. VI)	2 [1]
		Drill (Mil. Sci. and T. I)	[1]

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Senior Year.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Political Economy (Economics I), Civil Government (History II)	4	Civil Government (History II), Principles of Criticism—The Drama (English V)	4
Oratory (Oral Expr. IV)	1	Oratory (Oral Expr. IV)	1
Agric. Experimentation (Agron. X)	3	Breeding (An. Husb. IV)	3
Plant Breeding (Agron. XI)	3	Vet. Medicine (An. Husb. X)	3
Feeding (An. Husb. VI)	3	Landscape Gardening (Hort. XIII)	2 [1]
Landscape Gardening (Hort. XIII)	2 [1]	Elective	8
Elective	5	Drill (Mil. Sci and T. I)	[1]
Drill (Mil. Sci. and T. I)	[1]		

23 23

21½
22½
23
21
20
21
23
23
175

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*A credit is given for one recitation per week; or for one exercise of two hours per week in laboratory, field, or shop. Credits for the latter are enclosed in brackets.

The Engineering Course.

The engineering course has the same duration and the same general plan as the agricultural course. Students will follow the course as laid down until the second half of the Sophomore year, at which time they must elect one of the four optional lines offered, viz.: mechanical, electrical, civil, and chemical engineering. Any line of work for which the number of applicants is insufficient to warrant giving it, the college reserves the right to withdraw.

The course is arranged to prepare young men for skilled and efficient work in the great manufacturing and commercial industries of the state; in the development of electricity as a motive force and in its thousand-fold other applications to the arts and to the life of society; in the activities of the new road-building era upon which we are entering; and in the applications of chemistry as now found in the great industrial establishments. At the same time, in this as in all other courses, it is not forgotten that the man is not a mere lever in his own machinery, and the effort after breadth and completeness of life is steadily maintained. The tabulated course follows:

Freshman Year.

For the first year the course is the same for all students of engineering.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Rhetoric and Composition (English I)	3	Rhetoric and Composition (English I)	3
German or French (I or II)	3	German or French (I or II)	3
Algebra (Math. I) Trigonometry (Math. II)	5	Trigonometry, complete (Math. VII), Analytics (Math. VIII)	5
General Chemistry (Chem. I)	2 [1½]	General Chemistry and Qualitative Analysis (Chem. II)	3 [1½]
Mechanical Drawing (Mech. Eng. I)	[3]	Mechanical Drawing (Mech. Eng. I)	[2]
Forge and Foundry (Mech. Eng. II)	[3]	Pattern Making (Mech. Eng. III)	[3]
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]
Theory (Mil. Sci. and T. II)	1	Theory (Mil. Sci. and T. II)	1

MECHANICAL ENGINEERING.

Sophomore Year.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Newspaper Work (English II)	1	Argumentation (English III)	1
Interpretive Reading (Oral Expr. I)	1	Debating (Oral Expr. II)	1
Qualitative Analysis (Chem. III)	[3]	General Physics (Physics II)	4
General Physics (Physics II)	4	Laboratory (Physics III)	[1½]
Laboratory (Physics III)	[1½]	Calculus, completed (Math. XI)	5
Analytics, completed (Math. IX), Calculus (Math. X)	5	Graphic Statics (Mech. Eng. IV)	2
Descriptive Geometry (Mech. Eng. V)	1[2]	Mechanical Drawing (Mech. Eng. VI)	[3]
Surveying (Civ. Eng. I)	1 [2]	Mechanism (Mech. Eng. XII)	3
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Junior Year.

First Term.	Credits.	Second Term.	Credits.
Principles of Criticism (English IV)	4	Debating (Oral Expr. III)	1
Debating (Oral Expr. III)	1	Industrial History (History I)	4
Heat Engineering (Mech. Eng. IX)	3	Heat Engineering (Mech. Eng. IX)	3
Applied Mechanics (Mech. Eng. X)	5	Applied Mechanics (Mech. Eng. X), Hydraulics Mech. Eng. XI)	5
Machine Drafting (Mech. Eng. VIII)	[3]	Valve Gears (Mech. Eng. XIII)	3
Machine Shop (Mech. Eng. XIV)	[3]	Machine Shop (Mech. Eng. XIV)	[3]
Experimental Engineering a (Mech. Eng. XV)	[2]	Experimental Engineering b (Mech. Eng. XVI)	[2]
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Senior Year.

First Term.	Credits.	Second Term.	Credits.
Political Economy (Economics I), Civil Government (History II)	4	Civil Government (History II), Principles of Criticism—The Drama, (English V)	4
Oratory (Oral Expr. IV)	1	Oratory (Oral Expr. IV)	1
Experimental Engineering c (Mech. Eng. XVII)	2 [2]	Experimental Engineering d (Mech. Eng. XVIII)	[2]
Machine Design (Mech. Eng. XX)	[3]	Machine Design (Mech. Eng. XX)	[3]
Power Plants and Design (Mech. Eng. XXI)	2 [1]	Heating and Ventilation (Mech. Eng. XIX)	1
Assigned Work (Mech. Eng. XXII)	3	Assigned Work (Mech. Eng. XXII)	3
Theory of Direct Currents (El. Eng. I)	3	Theory of Alternating Currents (El. Eng. IV)	2
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]
		Dynamics of Machines (Mech. Eng. XXIII)	2
		Works Management (Mech. Eng. XXIV)	1
		Direct Current Laboratory (El. Eng. II).	[3]

ELECTRICAL ENGINEERING.

Sophomore Year.

First Term.	Credits.	Second Term.	Credits.
Newspaper Work (English II)	1	Argumentation (English III)	1
Interpretive Reading (Oral Expr. I)	1	Debating (Oral Expr. II)	1
Qualitative Analysis (Chem. III)	[3]	General Physics (Physics II)	4
General Physics (Physics II)	4	Laboratory (Physics III)	[1½]
Laboratory (Physics III)	[1½]	Calculus, completed (Math. XI)	5
Analytics, completed (Math. IX), Calculus (Math. X)	5	Graphic Statics (Mech. Eng. IV)	2
Descriptive Geometry (Mech. Eng. V.)	1 [2]	Mechanical Drawing (Mech. Eng. VI)	[3]
Surveying (Civ. Eng. I)	1 [2]	Machine Shop (Mech. Eng. VII)	[3]
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]
		Electrical Measurements, (El. Eng. III)	½

Junior Year.

First Term.	Credits.	Second Term.	Credits.
Principles of Criticism (English IV)	4	Debating (Oral Expr. III)	1
Debating (Oral Expr. III)	1	Industrial History (History I)	4
Theory of Direct Currents (El. Eng. I)	3	Direct Current Laboratory (El. Eng. II).	[3]
Electrical Measurements (Physics IV)	1	Theory of Alternating Currents (El. Eng. IV)	2
ElectricalMeas.Laboratory(PhysicsV)	[1½]	Heat Engineering (Mech. Eng. IX)	3
Heat Engineering (Mech. Eng. IX)	3	Applied Mechanics (Mech. Eng. X), Hydraulics (Mech. Eng. XI)	5
Applied Mechanics (Mech. Eng. X)	5	Experimental Engineering b (Mech. Eng. XVI)	[2]
Experimental Engineering a (Mech. Eng. XV)	[2]	Drill (Mil. Sci. and T. I)	[1]
Drill (Mil. Sci. and T. I)	[1]		
Principles of Illumination (Phys. VI)	1 [1½]		

Senior Year.

First Term.	Credits.
Political Economy (Economics I), Civil Government (History II)	4
Oratory (Oral Expr. IV)	1
Theory of Alternating Currents (El. Eng. V)	3
Alternating-Current Laboratory (El. Eng. VI)	[3]
Telephone Engineering (El. Eng. VIII)	1
Assigned Work (El. Eng. XII)	[3]
Experimental Engineering c (Mech. Eng. XVII)	2 [2]
Drill (Mil. Sci. and T. I)	[1]
Transmission of Energy (El. Eng. X)	2
Power Plants (Mech. Eng. XXI)	2

Second Term.	Credits.
Civil Government (History II), Principles of Criticism—The Drama (English V)	4
Oratory (Oral Expr. IV)	1
Theory of Alternating Currents (El. Eng. V)	3
Alternating Current Laboratory (El. Eng. VI)	[3]
Design of Electrical Machinery (El. Eng. VII)	[3]
Electric-Railway Engineering (El. Eng. XI)	2
Assigned Work (El. Eng. XII)	[3]
Drill (Mil. Sci. and T. I)	[1]

CIVIL ENGINEERING.

Sophomore Year.

First Term.	Credits.
Newspaper Work (English II)	1
Interpretive Reading (Oral Expr. I)	1
Qualitative Analysis (Chem. III)	[3]
General Physics (Physics II)	4
Laboratory (Physics III)	[1½]
Analytics, completed (Math. IX), Calculus (Math. X)	5
Descriptive Geometry (Mech. Eng. V)	1 [2]
Surveying (Civ. Eng. I)	1 [2]
Drill (Mil. Sci. and T. I)	[1]

Second Term.	Credits.
Argumentation (English III)	1
Debating (Oral Expr. II)	1
General Physics (Physics II)	4
Laboratory (Physics III)	[1½]
Calculus completed (Math. XI)	5
Graphic Statics (Mech. Eng. IV)	2
Mechanical Drawing (Mech. Eng. VI)	[3]
Machine Shop (Mech. Eng. VII)	[1½]
Topographic Surveying (Civ. Eng. II)	1 [2]
Drill (Mil. Sci. and T. I)	[1]

Junior Year.

First Term.	Credits.
Principles of Criticism (English IV)	4
Debating (Oral Expr. III)	1
Graphic Statics (Civ. Eng. IV)	2
Steam Engineering (Mech. Eng. XXV)	3
Applied Mechanics (Mech. Eng. X)	5
Railroad Engineering (Civ. Eng. III a)	5
Drill (Mil. Sci. and T. I)	[1]

Second Term.	Credits.
Debating (Oral Expr. III)	1
Industrial History (History 1)	4
Railroad Engineering (Civ. Eng. III b)	3
Applied Mechanics (Mech. Eng. X), Hydraulics (Mech. Eng. XI)	5
Experimental Engineering b (Mech. Eng. XVI)	[2]
Geology (I)	2
Roads and Pavements (Civ. Eng. V)	3 [1]
Drill (Mil. Sci. and T. I)	[1]

Senior Year.

First Term.	Credits.
Political Economy (Economics I), Civil Government (History II)	4
Oratory (Oral Expr. IV)	1
Experimental Engineering c (Mech. Eng. XVII)	2 [2]
Bridge Details (Civ. Eng. VI)	[2]
Bridge Analysis (Civ. Eng. VII)	2
Masonry Construction (Civ. Eng. IX)	2 [1]
Sewerage (Civ. Eng. XI)	2
Assigned Work (Civ. Eng. XV)	3
Drill (Mil. Sci. and T. I)	[1]

Second Term.	Credits.
Civil Government (History II), Principles of Criticism—The Drama (English V),	4
Oratory (Oral Expr. IV)	1
Experimental Engineering d (Mech. Eng. XVIII)	[2]
Bridge Design (Civ. Eng. VIII)	[3]
Reinforced Concrete (Civ. Eng. X)	2
Water Supply (Civ. Eng. XII)	3
Tunneling (Civ. Eng. XIII)	1
Contracts and Specifications (Civ. Eng. XIV)	2
Assigned Work (Civ. Eng. XV)	3
Drill (Mil. Sci. and T. I)	[1]

CHEMICAL ENGINEERING.

Sophomore Year.

First Term.	Credits.	Second Term.	Credits.
Newspaper Work (English II)	1	Argumentation (English III)	1
Interpretive Reading (Oral Expr. I)	1	Debating (Oral Expr. II)	1
Qualitative Analysis (Chem. III)	[3]	General Physics (Physics II)	[1½]
General Physics (Physics II)	4	Laboratory Physics (Physics III)	4
Laboratory (Physics III)	[1½]	Calculus, completed (Math. XI)	5
Analytics, completed (Math. IX), Calculus (Math. X)	5	Graphic Statics (Mech. Eng. IV)	2
Descriptive Geometry (Mech. Eng. V)	1 [2]	Organic Chemistry (Chem. IV)	3 [1]
German (Ger. II)	3	Mechanism (Mech. Eng. XII)	3
Drill (Mil. Sci. and T. I)	[1]	German (Ger. II)	3
		Drill (Mil. Sci. and T. I)	[1]

Junior Year.

First Term.	Credits.	Second Term.	Credits.
Principles of Criticism (English IV)	4	Debating (Oral Expr. III)	1
Debating (Oral Expr. III)	1	Industrial History (History I)	4
Heat Engineering (Mech. Eng. IX)	3	Heat Engineering (Mech. Eng. IX)	1½
Applied Mechanics (Mech. Eng. X)	5	Organic Chemistry (Chem. VI)	[3]
Quantitative Analysis (Chem. VII)	[3]	Quantitative Analysis (Chem. VIII)	[4½]
Physical Chemistry (Chem. XII)	3 [1]	Determinative Mineralogy (Chem. XI)	[1½]
Reports and Discussions (Chem. XXI)	1	Industrial Chemistry (Chem. XVI)	4
Drill (Mil. Sci. and T. I)	[1]	Reports and Discussion (Chem. XXI)	1
		Drill (Mil. Sci. and T. I)	[1]

Senior Year.

First Term.	Credits.	Second Term.	Credits.
Political Economy (Economics I), Civil Government (History II)	4	Civil Government (History II), Principles of Criticism—The Drama (English V)	4
Oratory (Oral Expr. IV)	1	Oratory (Oral Expr. IV)	1
Quantitative Analysis (Chem. VIII)	[3]	Metallurgy (Chem. XIII)	2
Experimental Engineering a (Mech. Eng. XV)	[2]	Industrial Chemistry. XVII)	[3]
Theory of Direct Currents (El. Eng. I)	3	Assaying (Chem. XVIII)	[2]
Organic Chemistry (Chem. V)	3 [1]	Reports and Discussions (Chem. XXI)	1
Reports and Discussions (Chem. XXI)	1	Assigned Work (Chem. XX)	3
Assigned Work (Chem. XX)	3	Electro-Chemistry (Chem. XXII)	3
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Teachers' Courses in Applied Science.

This course is intended to prepare persons to teach in industrial schools those branches of applied science that pertain especially to agriculture and the mechanic arts. In such schools it has been found of especial importance that the teachers be trained in an environment of current thought, sympathetic with the industrial applications of science and intelligently appreciative of the methods and problems of such work. In response, therefore, to the need, and in accordance with an expressed purpose of the latest fund from the United States Government, we have constructed this course. The effort has been to make the course effective for its purpose, while at the same time retaining for it that breadth and that cultural influence that are necessary to fit the whole man or woman for social life and are especially important in persons who, as teachers, will exercise large personal influence over immature youth.

The general plan of the course is the same as that of the other two courses just described. It offers to the student, at the beginning of the Junior year, three options, one of which he must select in conjunction with certain studies required of all. The tabulated course follows:

Freshman Year.

First Term.	Credits.
Rhetoric and Composition (English I)	3
German or French (I or II)	3
Algebra (Math. I), Trigonometry (Math. II)	5
General Chemistry (Chem. I)	2 [1½]
General Botany (Botany I)	1 [2]
Propagation of Plants (Hort. I)	1 [1]
Drawing, Pencil (Fr. Dr. II)	[1]
Drill (Mil. Sci. and T. I), and Theory (Mil. Sci. and T. II)	1 [1]
or	
Hygiene (Home Econ. III a) and Physical Training	1 [1]

Second Term.	Credits.
Rhetoric and Composition (English I)	3
German or French (I or II)	3
General Chemistry and Qualitative Analysis (Chem. II)	3 [1½]
General Botany (Botany I)	1 [2]
Trigonometry, completed (Math. VII), Analytics (Math. VIII)	5
Drawing, Pencil (Fr. Dr. II)	[1]
Drill (Mil. Sci. and T. I), and Theory (Mil. Sci. and T. II)	1 [1]
or	
Euthenics (Home Econ. III b) and Physical Training	1 [1]

Sophomore Year.

First Term.	Credits.
Newspaper Work (English II)	1
Interpretive Reading (Oral Expr. I)	1
German or French (II)	3
Qualitative Analysis (Chem. III)	[3]
Economic Botany (Botany II)	1 [2]
General Zoölogy (Zoöl. I)	2 [2]
General Physics (Physics II)	4
Laboratory (Physics III)	[1½]
Drill (Mil. Sci. and T. I) or Physical Training	[1]

Second Term.	Credits.
Argumentation (English III)	1
Debating (Oral Expr. II)	1
German or French (II)	3
Organic Chemistry (Chem. IV)	3 [1]
Physiology (Zoöl. III)	3 [1]
Geology (I)	[2]
General Physics (Physics II)	4
Laboratory (Physics III)	[1½]
Drill (Mil. Sci. and T. I) or Physical Training	[1]

Junior Year.

First Term.	Credits.
Principles of Criticism (English IV)	4
Debating (Oral Expr. III)	1
Psychology (Psy. and Ed. IV)	3
Drill (Mil. Sci. and T. I) or Physical Training	[1]
Elective	5
Options: A, B, C.	
All of the subjects in one of the following groups must be chosen:	
A. Agriculture.	
Soils (Agron. III)	4 [1½]
Veg. Gardening (Hort. II) or Fruit Culture (Hort. III)	2
B. Biology.	
Vertebrate Anatomy (Zoöl. VII)	[3]
Plant Histology (Botany V)	1 [4]
C. Chemistry.	
Quantitative Analysis (Chem. VIII)	[3]
Physical Chemistry (Chem. XII)	3 [1]
Reports and Discussions (Chem. XXI)	1

Second Term.	Credits.
Debating (Oral Expr. III)	1
Industrial History (History I)	4
Drill (Mil. Sci. and T. I) or Physical Training	[1]
Elective	5
Options: A, B, C.	
All of the subjects in one of the following groups must be chosen:	
A. Agriculture.	
Farm Crops (Agron. IV)	3 [1]
Economic Entomology (Zoöl. IV)	3 [1]
Forestry (Botany IV)	2
B. Biology.	
Histology andEmbryology (Zoöl. VIII)	2 [3]
Plant Pathology (Botany VI)	1 [4]
C. Chemistry.	
Organic Chemistry (Chem. VI)	[3]
Quantitative Analysis (Chem. VIII)	[4½]
Mineralogy (Chem. XI)	[1½]
Reports and Discussions (Chem. XXI)	1

Senior Year.

First Term.	Credits.
Political Economy (Economics I). Civil Government (History II)	4
Oratory (Oral Expr. IV)	1
History of Education (Psy. and Ed. I)	3
Principles of Education (Psy. and Ed. II)	2
Assigned Work	3
Drill (Mil. Sci. and T. I) or Physical Training	[1]
Options: A, B, C.	
All of the subjects in one of the following groups must be chosen:	
A. Agriculture.	
Poultry (An. Husb. XII)	[1]
Landscape Gardening (Hort. XIII)	2 [1]
Feeding (An. Husb. VI)	3
B. Biology.	
Plant Breeding (Agron. XI)	3
Trees and Shrubs (Botany III)	[1]
Entomology (Zoöl. V)	1 [2]
C. Chemistry.	
Physical Chemistry (Chem. XII)	3 [1]
Reports and Discussions (Chem. XXI)	1

Second Term.	Credits.
Civil Government (History II), Principles of Criticism—The Drama (English V)	4
Oratory (Oral Expr. IV)	1
Secondary Education (Psy. and Ed. III)	2
Assigned Work	3
Drill (Mil. Sci. and T. I) or Physical Training	[1]
Options: A, B, C.	
All of the subjects in one of the following groups must be chosen:	
A. Agriculture.	
Landscape Gardening (Hort. XIII)	2 [1]
Floriculture (Hort. VI)	1 [1]
Farm Buildings (An. Husb. XI)	[1]
Breeding (An. Husb. IV)	3
B. Biology.	
General Zoölogy (Zoöl. II)	1 [2]
Entomology (Zoöl. V)	2 [2]
Trees and Shrubs (Botany III)	[1]
C. Chemistry.	
Electro-Chemistry (Chem. XXII)	3
Industrial Chemistry (Chem. XVI)	4
Industrial Chemistry (Chem. XVII)	[3]
Reports and Discussions (Chem. XXI)	1

The Course in Home Economics.

The object of the home economics course is to fit young women for homemaking and to provide adequate training for teachers of the various household arts. Nowhere is the application of modern science to everyday life more important than in the home. In no other lifework do women find greater need of scientific knowledge and technical skill than in the intelligent and economic administration of household affairs.

The course includes instruction in the planning, sanitation, decoration, and care of the house and its administration on the economic side; the preparation of food from the scientific and economic points of view; the study of nutrition; the discussion of problems of personal and public hygiene and instruction in the care of infants and young children. During one year instruction is given in hand sewing, machine practice, and in drafting, cutting, and making of plain garments. Although the main work is scientific and technical, the importance of artistic and literary training for home life has not been neglected. It is recognized that all the knowledge of right living is needed to assist the student to a broader conception of citizenship as well as in performing the manifold duties of daily life.

Attention has also been given, in planning the course, to the need of students desiring to enter special fields of domestic activity along institutional and educational lines of work.

The entrance requirements are the same as for the other college courses. Thirty-eight of the credits required for graduation, are in the home economics department. Students are expected to take the course as outlined below, with choice of electives; but when entered in other courses in the college they may elect certain work in the home economics department, under direction of the head of the department. The tabulated course follows:

Freshman Year.

First Term.	Credits.	Second Term.	Credits.
Rhetoric and Composition (English I)	3	Rhetoric and Composition (English I)	3
German or French (I or II)	3	German or French (I or II)	3
Algebra (Math. I), Trigonometry (Math. II)	5	General Chemistry and Qualitative Analysis (Chem. II)	3 [1½]
General Chemistry (Chem. I)	2 [1½]	General Botany (Botany I)	1 [2]
General Botany (Botany I)	1 [2]	Drawing, Pencil (Fr. Dr. II)	[1]
Drawing, Pencil (Fr. Dr. II)	[1]	Physical Training	[1]
Physical Training	[1]	Domestic Art (H. Ec. I)	[2]
Domestic Art (H. Ec. I)	[1]	Elementary Cookery (H. Ec. II)	1 [1]
Hygiene (H. Ec. IIIa)	1	Euthenics (H. Ec. IIIb)	1

Sophomore Year.

First Term.	Credits.	Second Term.	Credits.
Newspaper Work (English II)	1	Argumentation (English III)	1
Interpretive Reading (Oral Expr. I)	1	Debating (Oral Expr. II)	1
German or French (II)	3	German or French (II)	3
Qualitative Analysis (Chem. III)	[3]	Organic Chemistry (Chem. IV)	3 [1]
General Zoölogy (Zoöl. I)	2 [2]	Physiology (Zoöl. III)	3 [1]
Color Problems (Fr. Dr. IV)	[1]	Descriptive Physics (Physics I)	5
Physical Training	[1]	Physical Training	[1]
Foods (H. Ec. IV)	3[1½]	Foods (H. Ec. IV)	2[1½]
Household Management (H. Ec. V)	2		

Junior Year.

First Term.	Credits.	Second Term.	Credits.
Principles of Criticism (English IV)	4	Debating (Oral Expr. III)	1
Debating (Oral Expr. III)	1	Industrial History (History I)	4
Psychology (Psy. and Ed. IV)	3	Physical Training	[1]
Physical Training	[1]	Physiological Chemistry (Chem. XIX)	4
Vertebrate Anatomy (Zoöl. VII)	[3]	Histology and Embryology (Zoöl. VIII)	2 [3]
Mechanical Drawing (Mech. Eng. I)	[1½]	History of Art (Fr. Dr. III)	2
Human Nutrition (H. Ec. VI)	3	Freehand Drawing (VIII)	[1]
Home Decoration (H. Ec. VII)	2	Dietetics (H. Ec. VIII)	1 [1]
Elective	4	Sanitation (H. Ec. IX)	2

Senior Year.

First Term.	Credits.	Second Term.	Credits.
Political Economy (Economics I), Civil Government (History II)	4	Civil Government (History II), Principles of Criticism—The Drama (English V)	4
Oratory (Oral Expr. IV)	1	Oratory (Oral Expr. IV)	1
Physical Training	[1]	Sociology (Psy. and Ed. VII)	3
Food Analysis (Chem. X)	[4]	Physical Training	[1]
History of Education (Psy. and Ed. I)	3	Assigned Work (H. Ec. XIV)	3 [2]
History of Art (Fr. Dr. III)	2	Home Nursing (H. Ec. XII)	2
Food Preservation (H. Ec. X)	[1]	Therapeutic Cookery (H. Ec. XIII)	1 [1]
Hygiene and Care of Children (H. Ec. XI)	2	Elective	3
Elective	3		

II. SHORT COURSES IN AGRICULTURE, IN MECHANIC ARTS, AND IN DOMESTIC SCIENCE.

To meet the needs of those who find it inexpedient to undertake a four years' college course, but who, nevertheless, desire to increase their efficiency on the farm, in the home or in industrial pursuits, the college offers what are known as short courses in agriculture, in mechanic arts, and in domestic science.

At present each of these courses is of two years' duration. The only requirements for admission are that candidates shall be at least eighteen years of age and shall have completed the common school course. The courses are in no case supposed to serve as a substitute for the regular work of the college, in character or scope of the subject-matter presented, and do not lead, directly or indirectly, to a degree, a certificate only being granted. Neither are they to be considered as preparatory to the college work. Their particular function is to give, in the shortest, most direct way possible, certain definite, specific, and perhaps uncorrelated information which will be of immediate value on the farm, in the shop, or in the home.

In studies of common interest, like mathematics and English, all short-course students work together. All other instruction is of a special nature and is given in the respective departments of agriculture, mechanical engineering, and home economics. In mathematics work is begun in arithmetic, covers mensuration, gives an elementary treatment of bookkeeping, and proceeds with work of a more advanced character as far as the capabilities of the class will permit. The greatest stress is laid upon the analysis and solution of many practical problems from the farm, the factory, and from daily life. In English, the object is to develop the power of clear analysis and expression by continued drill in grammar and composition, based upon readings in industrial or political history.

The special work in agriculture treats in an elementary way of such subjects as plant life, soils and fertilizers, vegetable gardening, stock judging, crops, dairy practice, poultry, fruit culture, etc. The course in domestic science gives practical instruction in the care of the house, foods, plant life, physical training, home management, etc. The engineering department offers work in the various forms of shop work, draughting, mechanical movements, and practical information in regard to the construction and operation of engines, boilers, and pumps.

Short-course work is of comparatively recent introduction at this institution, and consequently is still in the process of development. It is hoped to increase the effectiveness of each of the above phases of the work at as early a date as possible, by more completely separating them from one another and from other lines of instruction; also, particularly in agriculture and engineering, by a re-adjustment of the time in such a way as to accommodate a greater number of men desiring to take the course. For example, it is proposed to give the agricultural matter in three winter terms of twenty-four weeks each, rather than in two years of thirty-six weeks each, the idea being that the shorter period would enable a larger number of practical farmers to attend. In engineering, the problem is somewhat different. Its proposed solution is as follows:—Demands for definite, special training, as for a dynamo tender or a stationary engineer, may be met by making the courses of instruction largely special or elective. In order that irregular periods of freedom from regular duties may be employed for study, and that each individual's progress may depend only on his own exertions and ability, it is proposed to conduct this department as an ungraded school. This plan should possess the attractions and possibilities of the usual correspondence courses, and be far superior to them in the opportunities for personal instruction and laboratory practice. According to this arrangement, a student might enter at any time and take any one or group of the following subjects: English grammar, and composition based on the technical work; arithmetic and mensuration; mechanical drawing; forge shop; pattern making; machine shop; mechanical movements; elementary discussion of power-plant machinery; elementary electricity; electrical wiring. The tabulated courses follow:

Agriculture.

First Year.

FIRST TERM.	CREDITS.	SECOND TERM.	CREDITS.
Elementary English (A)	5	Elementary English (A)	5
Plant Life (Botany A)	1 [2]	Plant Life (Botany A)	1 [2]
Elementary Zoölogy (A)	3 [1½]	Soils, Fertilizers (Agron. A)	4 [1]
Breeds (An. Husb. A)	2	Plant and Animal (Chem. A)	3 [1]
Stock Judging (An. Husb. B)	[2]	Nursery Practice (Hort. C)	1 [1]
Plant and Animal (Chem. A)	3 [1]	Benchwork (Woodwork I)	[1½]
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Second Year.

First Term.	Credits.	Second Term.	Credits.
Bookkeeping (Math. G)	4	Vegetable Gardening (Hort. A)	2 [1]
Crops and Rotation (Agron. B)	3 [1]	Farm Management (Agron. C)	4
Dairy Practice (An. Husb. C)	1 [2]	Breeding (An. Husb. E)	2 [1]
Stock Feeding (An. Husb. D)	3	Poultry (An. Husb. F)	1 [1]
Fruit Culture (Hort. B)	3	Farm Buildings (Woodwork H)	[1]
Poultry (An. Husb. F)	1 [1]	Farm Machinery (Agron. D)	1 [2]
Care of Farm Animals (An. Husb. G)	2	Spraying and Pruning (Hort. E)	1 [1]
Drill (Mil. Sci. and T. I)	[1]	Home Grounds (Hort. F)	[1]
		Drill (Mil. Sci. and T. I)	[1]

Mechanic Arts.

First Year.

First Term.	Credits.	Second Term.	Credits.
Elementary English (A)	5	Elementary English (A)	5
Arithmetic (Math. F)	5	Arithmetic (Math. F)	[5]
Mechanical Drawing (Mech. Eng. A)	[3]	Mechanical Drawing (Mech. Eng. A)	[3]
Forge and Foundry (Mech. Eng. II)	[3]	Pattern Making (Mech. Eng. III)	[3]
Machine Shop (Mech. Eng. VII)	[3]	Machine Shop (Mech. Eng. VII)	[3]
Mechanical Movements (Mech. Eng. D)	3	MechanicalMovements(Mech.Eng. D)	3
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Second Year.

First Term.	Credits.	Second Term.	Credits.
Elementary English (B)	3	Elementary English (B)	3
Bookkeeping (Math. G)	4	Algebra (Math. H)	5
Mechanical Drawing (Mech. Eng. B)	[3]	Mechanical Drawing (Mech. Eng. B)	[3]
Machine Shop (Mech. Eng. XIV)	[3]	Machine Shop (Mech. Eng. XIV)	[3]
Engineering Theory (Mech. Eng. E)	5	Engineering Theory (Mech. Eng. E)	5
Elementary Physics (A)	3	Elementary Physics (A)	3
Drill (Mil. Sci. and T. I)	[1]	Drill (Mil. Sci. and T. I)	[1]

Domestic Science.

First Year.

First Term.	Credits.	Second Term.	Credits.
Elementary English (A)	5	Elementary English (A)	5
Arithmetic (Math. F)	5	Arithmetic (Math. F)	5
Plant Life (Botany A)	1 [2]	Plant Life (Botany A)	1 [2]
Elementary Zoölogy (A)	3[1½]	Floriculture (Hort. D)	[2]
Household Technique (Dom. Sci. A)	1	Foods (Dom. Sci. C)	3 [1½]
Sewing (Dom. Sci. B)	[1]	Physical Training	[1]
Physical Training	[1]		

Second Year.

First Term.	Credits.	Second Term.	Credits.
Elementary English (B)	3	Elementary English (B)	3
Bookkeeping (Math. G)	4	Algebra (Math. H)	5
Plant and Animal (Chem. A)	3 [1]	Plant and Animal (Chem. A)	3 [1]
English History (History A)	3	English History (History A)	3
Dietetics (Dom. Sci. D)	3 [1½]	Management of House (Dom. Sci. E)	1
Physical Training	[1]	Hygiene (Dom. Sci. F)	1
		Textiles (Dom. Sci. G)	[1½]
		Physical Training	[1]

II. SPECIAL POULTRY COURSE.

For many years this college has offered a winter course in the poultry industry. In fact, the first poultry course to be offered in the United States was offered here fourteen years ago. The college will continue to offer a course during the winter term.

Requirements for Admission to the Degree Courses.

UNITS.

The requirements for admission are reckoned in units. A "unit" represents the successful completion of a year's study of a subject, to which have been devoted not less than one hundred and twenty recitation periods of sixty minutes each, or their equivalent (*e. g.*, one hundred and eighty periods of forty minutes each). Fourteen units are required. A student may obtain this amount of entrance credit from high-school work or from examination.

GROUPS.

The entrance subjects are divided into two groups, A and B. Those in A, with one exception—solid geometry—are required of all candidates for admission.

Group A.

The school year is reckoned at thirty-six weeks, the minimum length.

English	108 weeks	3 units.
German or French	36 weeks	1 unit.
Algebra	54 weeks	1½ units.
Geometry, Plane	36 weeks	1 unit.
Geometry, Solid—for engineering students only,	18 weeks	½ unit.
Physics	36 weeks	1 unit.
History	36 weeks	1 unit.

The remainder of the fourteen units must be taken from

Group B.*

No subject is accepted for more than the amount here stated or for less than two-fifths of a unit.

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*Other subjects not here named will receive due consideration if presented on the application blank, with a statement of the work done.

Foreign Language	216 weeks	6 units.
Geometry, Solid—for other than engineering students,	18 weeks	½ unit.
Botany	36 weeks	1 unit.
Chemistry	36 weeks	1 unit.
Geology	18 weeks	½ unit.
Physiography	36 weeks	1 unit.
Physiology	18 weeks	½ unit.
Zoölogy	36 weeks	1 unit.
History	36 weeks	1 unit.
Drawing	36 weeks	1 unit.
Domestic Science	18 weeks	½ unit.
Shop Practice	18 weeks	½ unit.
Farm Practice	18 weeks	½ unit.

METHODS OF ADMISSION.

On any or all of the subjects named in both groups, satisfactory standings from any reputable high school will be accepted in lieu of examination, on presentation of a copy of the student's full record in the high school, showing clearly the nature of the work pursued in each subject, time devoted to it, and grade of work done. This copy must be duly signed by the proper official of the school, and must be accompanied by a certificate of good moral character. The latter, however, may be from any reputable source. On application, blanks showing definitely the full nature of the information desired from the high school will be furnished.

Candidates not presenting satisfactory standings from reputable high schools will be examined, over ground corresponding to the number of points attached on all the subjects of Group A and on such of Group B as they may offer. Examinations for entrance will be held at the opening of the college year in September, as announced in the calendar, page 10.

SPECIFICATIONS OF GROUND TO BE COVERED.*

GROUP A.

These subjects, with the exception stated, are required of all students to the extent indicated by the number of units designated in each case.

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*For any or all of the subjects described below the requirements of the College Entrance Examination Board, upon which these specifications are largely based, will be accepted. A circular stating these requirements in detail and blank forms of application for examination may be obtained by sending ten cents in stamps to the College Entrance Examination Board, Post Office Sub-Station 84, New York City.

Languages.

English, 3 units.—In English two aims are sought: first, a knowledge of the language—including the acquisition of an ample vocabulary and power of effective expression—second, some acquaintance with the literature. To attain the first, grammar and composition must be thoroughly studied. Throughout the secondary-school course there should be much practice in writing along a variety of lines suggested by the pupil's experience, his general interests, and studies other than English. Spelling, punctuation, accuracy of idiom, should receive due attention in all written work; while correct and forceful oral expression should also be insisted upon.

To meet the requirement in literature certain selections are to be made from two lists of works—one for reading, the other for closer study. It is hoped to foster in this way a taste for good books and an intelligent appreciation of them. Committing to memory selected passages and reading aloud are strongly urged. In all cases some knowledge of the author's life and his place in literature should be acquired, while a more exacting study of selected texts would lay emphasis on form and style, meaning of particular words and phrases, and the significance of allusions. The list of books prescribed for 1912–13 may be obtained from the nearest high-school principal.

German, 1 unit.—During the first year the work should consist of drill in pronunciation, the rudiments of grammar, writing from dictation, simple composition and conversation, and the reading of from 100 to 175 pages of easy prose and poetry.

French, 1 unit.—The course in French should parallel that in German. During the first year there should be drill in pronunciation, the rudiments of grammar, writing from dictation, simple composition and conversation, and the reading of from 100 to 175 pages of easy prose and poetry.

Mathematics.

Algebra, 1½ units.—The requirement in algebra comprises the four fundamental operations; factoring, highest common factor and lowest common multiple; fractions; linear equations; exponents; radicals; quadratic equations; simultaneous equations involving quadratics; binomial theorem for positive integral exponents. Problems should be given at frequent intervals in the work.

Plane Geometry, 1 unit.—This requirement is met by the usual theorems and constructions of standard text-books, numerous originals, and applications.

Solid Geometry, ½ unit.—The ground is covered by the usual theorems and constructions of standard text-books, originals, and applications.

Science.

Physics, 1 unit.—This course should consist of class-room work based on a standard text-book, accompanied by lecture-table demonstrations and by numerous practical problems. A parallel course in individual laboratory work is desirable, but is not absolutely required. In the case of laboratory work, one hour of credit will be allowed for each two hours spent in the laboratory.

History, 1 unit.

The requirement in history will be met by presenting any one of the following subjects: ancient history, especially Greek and Roman, with the chief events of the early Middle Ages to the death of Charlemagne (814); medieval and modern European history from 814 to the present time; English history; American history and civil government.

GROUP B.

From this group units are to be taken, in addition to those of Group A, sufficient to make up the whole number required. Any combination of units, including fractions not less than two-fifths, will be allowed.

Languages.

German, 2 or 3 units.—The requirement for one unit is indicated under Group A. One unit will also be allowed for second and one each for third and fourth year work. During the second year the course should be a continuation of the first as regards grammar, composition, and conversation. The reading should consist of at least 200 pages of such texts as Arnold's *Fritz auf Ferien*, Wildenbruch's *Das Edle Blut*, Mosher's *Willkommen in Deutschland* and Benedix' *Der Prozess*. Third-year study should emphasize reading and advanced composition. Suitable texts are Riehl's *Der Fluch der Schonheit*, Freytag's *Bilder aus der deutschen Vergangenheit*, Lessing's *Minna von Barnhelm*, Schiller's *Wilhelm Tell*, and Heine's *Die Harzreise*. The fourth year's work should mark a decided advance in the mastery of vocabulary and idiom as shown both in speaking and writing. The works read may be made the basis for themes. The following reading matter is suggested: Freytag's *Soll und Haben*, Fulda's *Der Talisman*, Hauff's *Lichtenstein*, Scheffel's *Ekkehard*, Schiller's *Wallenstein*, *Maria Stuart*, or *Geschichte des dreissigjährigen Krieges* (Book III), Dahn's *Ein Kampf um Rom*, Goethe's *Dichtung und Wahrheit* (Books I–IV).

French, 2 or 3 units.—The requirement for one unit is indicated under Group A. One unit will also be allowed for second and one each for third and fourth year work. Throughout the second year the course should be a continuation of the first as regards grammar, composition, and conversation. At least 250 pages of such texts as Bruno's *Le Tour de la France*, Malot's *Sans Famille*, Mérimee's *Colomba*, and Sarcey's *Le Siège de Paris* should be read. In the third year emphasis should be laid on reading. Some time ought also to be given to advanced composition. Among suitable texts may be mentioned Racine's *Athalie*, Corneille's *Le Cid*, Molière's *Le Bourgeois Gentilhomme*, Sandeau's *Mademoiselle de la Seiglière*, Vigny's *La Canne de Jonc*, Hugo's *Le Chute*. From the fourth year's study increased facility in conversation and composition should be gained, and any modern French, other than technical, should be read with ease. Such texts as the following are recommended: the prose works of Dumas *perè*, Hugo's *Ruy Blas*, La Fontaine's *Fables*, Sainte-Beuve's Essays, Taine's *Origines de la France Contemporaine*, Pellissier's *Mouvement Littéraire au* XIX *Siècle*. At least 600 pages should be read.

LATIN, 1 TO 4 UNITS.—A credit of one unit will be given for each year's work in Latin, covering in all a standard beginners' book, four books of Cæsar's Gallic War, six orations of Cicero and six books of Virgil's Æneid. It is expected that work in prose composition and sight reading will be included in each subject.

Mathematics.

SOLID GEOMETRY, ½ UNIT.—See Group A. For other than engineering students.

Science.

BOTANY, 1 UNIT.—The preparation in botany should include individual laboratory work recorded by notes and diagrammatic drawings. Field work is desirable, and should also be accompanied by notes. The notebook and drawings certified by the teacher should be presented at the time of application for entrance credit. The year's course of study should consist of three parts, viz.: 1. The general principles of the anatomy, morphology, physiology, and ecology of seed plants. 2. The natural history of the plant groups. The structure, reproduction, and adaptations to habitat of one or two types from each group should be studied. 3. Classification. A brief study of the subdivisions of the above groups. Ability to determine species of flowering plants is not essential. Any standard text-book covering the above field may be used.

CHEMISTRY, 1 UNIT.—An elementary text-book, such as William's Elements of Chemistry by Brownlee and others, should be covered by recitations. At least one exercise per week must be devoted to individual work in the laboratory. The pupil must perform forty or more experiments, such as are described in the Report of the College Entrance Examination Board, 1909, and keep a notebook in which he describes the apparatus used, records the phenomena observed, and states the conclusions in his own words, in each experiment.

GEOLOGY, ½ UNIT.—In geology a study of the following subjects should be made: rock-forming minerals, their names and chemical constituents; earthquakes —their cause and effects; volcanoes—distribution, types, character of eruption, nature of erupted material; supposed physical state of the earth's interior; surface agencies destructive to rocks, with brief illustrations; processes of reconstruction with illustrations; rocks—classification, according to origin, rock fracture and dislocation, rock structure due to erosion, metamorphic rocks, mineral veins and their method of formation; conditions determining land sculpture; the geological periods, with land elevations, and the characteristics of climate, plant and animal life of each period.

PHYSIOGRAPHY, 1 UNIT.—This course should include a consideration of the earth as a globe, the atmosphere, the waters of the earth, the lands, life upon the earth, and the reactions between these elements. Special attention should be given to the questions of climate, the winds, the weather, tides, ocean currents, and to the effect of the ocean in modifying climatic conditions. Attention should be directed to the matter in which the land was originally formed and to the way in which the original formation has been and is being modified by the action of erosion, the winds, and frost. Throughout the course consideration should be given to the manner in which the various physical characteristics of the earth have affected life upon its surface.

PHYSIOLOGY, ½ UNIT.—The text-book work should cover material equivalent to that of Martin's Human Body or Hough and Sedgwick's Human Mechanism. In addition the applicant should present a notebook, showing laboratory work upon the elementary physiological processes and general structure of mammals.

ZOÖLOGY, 1 UNIT.—The work should include: 1. The general natural history of a number of common vertebrates and invertebrates common to the locality where the work is given. 2. The classification of these forms into phylum, class and order, with the characteristics of the several groups. 3. The main anatomical features of one vertebrate, two arthropods (one an insect); an annelid, preferably the earthworm, a coelenterate, two protozoans (Amœba and Paramoecium recommended). 4. The general physiology of the above types involving digestion, absorption, circulation, excretion, and nerve function. These should be compared with the same functions in the human body. 5. The following subjects should be brought before the student in connection with the foregoing studies: asexual and sexual reproduction, alternation of generations, regeneration, fertilization, and segmentation of egg cells; adaptation; variations, evidences of relationship between similar groups, the cell structure of animals.

Certified notebooks must be presented, which include notes upon work and discussion in classroom and drawings of the forms dissected.

History, 1 unit.

See Group A.

Drawing, 1 unit.

This may be either freehand or mechanical. If freehand drawing is offered, the candidate should submit at least fifteen drawings, the majority to be in pencil, certified as his work by the instructor. These should show ability to sketch from various objects with considerable accuracy of proportion and clearness of line, and a fair understanding of the rules of perspective and light and shade as applied in freehand sketching A candidate may also present the equivalent of five hours per week for one year in elementary mechanical drawing, lettering, or sketching from models.

Domestic Science, 1-2 unit.

In domestic science the student must present satisfactory evidence of knowledge in the following subjects: the use and care of the kitchen equipment, general cleaning processes, the marketable forms of staple foods. She must also show credit for at least twelve cooking laboratory lessons of two hours each.

Shop Practice, 1-2 unit.

The candidate may offer carpentry or any of the various forms of benchwork given in a well-equipped manual training school, equivalent to five hours per week for one-half year.

Farm Practice, 1-2 unit.

By "farm practice" is meant familiarity with the operations of the farm, such as the harnessing of teams, the use of tillage implements, and the care of dairy animals.

Degrees.

The degree of Bachelor of Science is conferred upon a student who has completed one of the four-year courses outlined on pages 18–26. The degree of Master of Science is conferred upon those holding a Bachelor's degree from this institution, in regular order, or from other institutions having equal requirements, upon the completion of one year of resident study, the presentation of a satisfactory thesis in applied or economic science, and upon passing examinations in the subjects pursued. Candidates not graduates of this college must file with the committee on graduate study, not later than October first, a detailed statement of their previous work, certified by the proper authorities. They must select, not later than November fifteenth, a major and a minor subject which must be closely related and have the approval of the committee on graduate study and of the professor in whose department the principal work is done. Major subjects may be selected in any of the following departments: agriculture; botany; chemistry; zoölogy; home economics; electrical, mechanical, and civil engineering. The minor may be selected from undergraduate subjects outlined in the catalogue; the major, however, must be advanced work specially arranged with the individual professor. The thesis must be typewritten, upon paper of the size and quality prescribed, and two copies must be in the hands of the president not later than June first.

The requirement for the degree of Mechanical Engineer, Electrical Engineer, or Civil Engineer, consists of three years of successful professional practice subsequent to the Bachelor's degree, one of which must have been in a responsible position; the presentation of an acceptable thesis; and the passing of examinations upon the investigations involved in the thesis.

A registration fee of five dollars is charged for an advanced degree. Students from outside the state pay a tuition fee of thirty dollars during the year of residence. The cost of a diploma is five dollars.

Teachers' Certificates.

The following resolution adopted by the Board of Education of this state is self-explanatory: "The certification of the president (of this college) that an applicant for a teacher's certificate has pursued a secondary school course of four years, subject to the approval of the committee on qualifications, and in addition thereto has pursued a four years' collegiate course in the Rhode Island College will be received as evidence of the required qualifications in scholastic subjects for a teacher's certificate of the first grade."

By action of the Regents of the State of New York, taken June 9, 1910, the degrees of B. S. and M. S. from this college are accepted as a basis for the issuance of licenses to teach in that state.

Expenses.

Tuition is free to residents of Rhode Island. To non-residents of the state, tuition is $15.00 a term, or $30.00 a year.

The regular college expenses are tabulated as follows:

Board, $3.75 per week	$135 00
Room-rent, including heat and light	30 00
Incidental fee, $4.50 per term	9 00
Laboratory expense, $5 per term, estimated	10 00
Uniform for military drill, estimated	16 00
	$200 00

The first three items must be paid quarterly in advance; that is to say, $43.50 will be required at the opening of the year, September 17, 1912, and also at each of the following dates: November 20, 1912; February 10, 1913; and April 14, 1913. Non-residents of the state should add to this sum $7.50 for tuition each quarter. In order to secure dormitory accommodations, the student is required to deposit one dollar with the application, the dollar to be credited on the fall-term room-rent. If the student fails to take the room, the dollar is forfeited. The uniform also must be paid for at the opening of the college year, in advance. The item of laboratory expense includes all material used in the various laboratories, and the destruction, breakage, or marring of apparatus and tools, and must be paid when bill is presented at the close of each semester.

Nothing has been said concerning books. The probable cost of these will be from $15.00 to $30.00 per year. For miscellaneous expenses connected with college life, students should add a sum varying from $10.00 to $25.00. A fee of 50 cents will be charged for each second examination to make up a condition. Graduates pay the cost of diplomas, $5.00. *No diplomas will be issued until all term bills have been paid.* Room-rent and incidental deposit will not be refunded on withdrawal during the quarter. An athletic tax, levied by the students upon themselves, will be taken at the college office at the times set for college dues.

UNIFORM.—Every able-bodied male student is required to drill and to wear a uniform. The uniform must be paid for immediately on entering the college, when the students are measured for the suits. When worn only on drill and properly cared for, one uniform may last two or more years. The student may, however, wear his uniform all the time.

TRANSPORTATION.—The college conveys students daily to and from the railroad station free of charge. Once at the beginning and end of each term, a team conveys trunks to and from the station.

BOARDING STUDENTS.—The price of board for 1912–13 will be $3.75 per week. Students who *leave regularly every week* on Friday afternoon and return Monday morning will receive a rebate for time of absence. No person will be admitted to the dining-room until he has secured from the bursar a meal ticket, on the back of which will be found the rules governing the holder of such ticket. After this ticket is issued, all charges for board will be made in accordance therewith, unless the student has the ticket changed by the bursar. Arrangement of charges for meals sent to students' rooms for any cause must be made in advance.

DORMITORIES FOR MEN.—East Hall is now in use, affording excellent accommodations for men students. The two upper floors are entirely devoted to rooms for students. The sanitary conveniences on each floor are excellent and ample, including a full complement of shower baths. The first floor contains a large assembly hall, a handsome social room for the men, and a dining-room and kitchen fitted with all modern equipment. South Hall and Watson House are devoted to the use of the fraternities and afford very desirable rooms for dormitory purposes.

DORMITORY FOR WOMEN.—During the summer of 1909 the interior of Davis Hall was entirely reconstructed. On the first floor are the administration offices. With the exception of the offices of the extension department on the second floor, the upper floors of the building are utilized for the women's department. The accommodations for women students in this building are under careful supervision, and compare favorably with those at any women's college in the country. There is a neat hospital, with all necessary adjuncts. The oversight of the young women is efficient, kindly, and painstaking. Attention is especially invited to the new facilities and arrangements for the welfare of young women.

FURNITURE.—The rooms in the women's dormitory are provided with necessary furniture, including mattresses, but no other bedding material. *All students in the men's dormitory are required to supply their own furniture and bedding.* The necessary furniture may be obtained at the college when desired. A room may be furnished for from $8.00 to $10.00. Iron bedsteads three feet wide are included under room-rent. The furniture, if properly kept, may be sold, when the student leaves, for one-half to three-fourths the original price. All students should bring with them such articles as sheets, blankets, pillow, pillow-slips (all for single bed), and towels. Men students are required to purchase mattresses at the college.

ROOMS IN THE VILLAGE.—Arrangements have been made for rooms in the village of Kingston, some of these being under college management and others in private houses. In the case of the former, room rent will vary from 60 cents to $1.00 per week, with heat and light furnished, the student to provide other furnishings. Furnished rooms in private houses for students who occupy them throughout the college year range from $1.25 to $2.00 per week.

COLLEGE STORE.—Students will be required to pay cash at the store for all books and other supplies.

DAMAGE FUND.—All damage not due to ordinary wear will be assessed to students as follows:

1. Students at once acknowledging damage and agreeing to pay for same will be assessed actual cost of repair, including labor.

2. Students found guilty of such damage, but not acknowledging and settling for the damage will be charged double the cost of repair.

3. Students will be responsible for damage in their own rooms. Damage that is not settled as above may be assessed to all the students or to a group of students, pro rata. Each case and the amount of assessment will be considered on its merits.

Employment at the College.

There is a certain amount of labor about the college buildings, on the farm, at the experiment station, and in the offices and laboratories, for which students will be employed whenever it is feasible to do so. Industrious students frequently earn an amount which aids considerably in paying their expenses,—a sum varying from $25.00 to $125.00 per year.

In view of the fact, however, that the amount of this work is strictly limited and that it is not the policy of the college to create such work, and, furthermore, because of the increasing number of students and the more frequent applications for student labor, it seems desirable to state the conditions under which this work will hereafter be assigned.

1. Application for work must be made on a blank which will be issued to the student on request. *Persons desiring such work must bring a statement certifying to what extent the student must depend upon himself for support.* It must be borne in mind that the student can not make this certification for himself. Application for work, however, under no circumstances creates a claim on the college that work shall be assigned the applicant.

2. At a certain time before the opening of the fall term all applications for work will be considered and appointments will be made after due consideration of

(a) Capability for the work.
(b) Trustworthiness.
(c) Good record as a student.
(d) Need for financial aid.

[NOTE: Other things being equal, preference will be given to residents of the state, to upper-class students, and to those who room and board at the college.]

3. Such appointments are subject to revocation at any time, for
   - (a) Incompetency.
   - (b) Unfaithfulness in discharge of duty.
   - (c) Misconduct or disloyalty to the institution.
   - (d) Bad record in studies.
4. Such appointments must be recognized as
   - (a) A mark of trust and responsibility.
   - (b) A real and vital part of one's training for promptness, for initiative, and for leadership.
   - (c) One of the very best criteria the teacher has in determining his estimate of the student's character, both for his own guidance and for recommendation to employers.

5. Payment for services will vary from ten to fifteen cents per hour, according to the grade and difficulty of the work and the experience of the student. In general, students should not expect more than ten cents an hour for the first year. It is a rule of the college that any student desiring to perform more than twenty hours of student labor per week must secure permission from the faculty council. In the future, it may be necessary to limit the amount which any one student may receive for student labor.

Some young people have the impression that the college offers such opportunities for self-help that it is safe to enter with practically no funds, relying solely on money earned while here. In exceptional cases this may be done, but prospective students are strongly advised not to enter until they have at least $100.00 at their disposal. A student who has to make his own way must also plan to work steadily during both the short and long vacations. Occasional vacation work at the college can be furnished to students, but as a rule they should look elsewhere for this class of work.

Religious Influences.

This college is a state institution, and consequently, the widest latitude is given to all creeds and forms of religious belief. Simple chapel exercises are held on one day of each week and are conducted by the president or some other member of the faculty. It is desired and expected that all students will attend chapel.

A branch of the Intercollegiate Young Men's Christian Association is doing active work among the men students, holding a meeting every Sunday throughout the year. This association conducts courses in bible study, and is taking the lead in endeavoring to establish sound and high ideas of college life.

The Young Women's Christian Union is doing a similar work for the young women.

The village church cordially invites all students to attend its services and if possible, to join its membership. Every effort is made by the college to minister to the higher life of the students and to bring before them the noblest ideals, without in any way attempting to coerce them to particular beliefs.

The College Lecture Association.

Faculty and students, uniting with residents of the vicinity, conduct a winter lecture course, the aim of which is to introduce talented speakers upon subjects both entertaining and instructive. The association may be looked upon as a permanent and important factor in college activities. For the season of 1911–1912, the following program was secured:

November 13. Lee Francis Lybarger, Lecture: "Land, Labor, Wealth."

December 11. The Schubert Male Quartet, assisted by Miss Marion H. Clarke, Reader.

January 4. Seumas MacManus, Lecture: "A Merry Ramble Round Ireland."

January 25. The Barleben String Quartet, of the Boston Symphony Orchestra.

March 28. Phidelah Rice, Impersonator, in "The Taming of the Shrew."

April 3. Colonel H. A. Dyer, Lecture: "An Artist's Rambles in Search of the Beautiful."

The Library.

The library occupies two large adjoining rooms in Lippitt Hall, and numbers over seventeen thousand volumes. The books are arranged in stacks, to which the students have free access. The Dewey system of classification is used; and a dictionary catalogue gives author, title, and subject entries. As the library has been from the first intended for reference work, the various departments of instruction have made their selections with the greatest care. In the reading-room, one hundred and twenty of the leading periodicals—of literary, scientific, and general interest—are on file. From time to time these are bound, and prove of great value in reference work.

Since the library has been a government depository twenty-five hundred books and pamphlets have been received, which are of value in scientific investigation and research.

The library is open every week day from 8:00 A. M. to 6:00 P. M., with the exception of an hour at noon. The librarian or her representative is in constant attendance, to aid any one in search of information. As the college is an institution designed to further the educational interests of Rhode Island, all residents of the state are at liberty to use the library.

Location.

The college campus is one and one-half miles from Kingston station, which is at the junction of the main line of the N. Y., N. H. & H. R. R. with the Narragansett Pier branch, thus insuring excellent railroad accommodations. The buildings are on a hill which commands an extended view of the surrounding country—a location both healthful and beautiful. Sixteen trains stop daily at the station, so that the college is accessible from Providence or from New York City at almost any hour in the day. The ride from Providence is about forty to forty-five minutes in length. From New York the time is some four hours.

Departments of Instruction.

The following subjects are offered in the different departments. All subjects in the departments of instruction preceded by a Roman numeral count towards the degree of B. S. All subjects preceded by a capital letter lead to a certificate.

Agriculture.

PROFESSOR ADAMS, PROFESSOR PUTNEY, ASSISTANT PROFESSOR COBB,
MR. BURDICK, MR. GODIN, MR. LAMBERT.

The instruction given in this subject is grouped under the three heads—agronomy, animal husbandry, and horticulture. The aim is to give such theoretical and practical training in the fundamentals of agriculture as will enable those who take this work to fill positions of trust and responsibility, either as owners of their own farms, managers of estates, or along other lines of agricultural activity.

That the graduates from this department may be fitted to take up the work outlined above, all students registered for a degree in agriculture will be required to show certain familiarity with the ordinary operations of the farm, before such degree is given.

In order that those students who have not had an opportunity to receive training in the practical work of the farm may become familiar with some of the more common operations, they will be required, during their connection with the college, to do a certain amount of routine farm work without pay. This will include work in the dairy barn, poultry yard, greenhouses and gardens. This training will be in addition to the laboratory credits prescribed in the regular course. The amount of such work required will depend upon the efficiency shown by the student. No college credits will be given for this work, yet the neglect of this phase of the training may be considered a sufficient cause for dismissal from the institution. Students may be required to spend one or two summers upon the farms in order to get additional training. Persons taking practical work upon farms during the summer vacations will be required to furnish a certificate from their employers, stating the time spent on the farm and the kind and amount of work accomplished. Special attention must be given to that branch of agriculture which the student is to elect during the Senior year.

AGRONOMY.

PROFESSOR ADAMS, MR. BURDICK.

The instruction in agronomy begins the first term of the Sophomore year, when a study is made of the forage plants. Following this work are subjects dealing with the other field crops and their uses as food for man and beast. In the work with soils and fertilizers, especial emphasis is placed upon the problems connected with the proper use of chemical manures.

The business side of farm life is given attention in the subjects treating of farm equipment and management. Work with farm machinery is a laboratory course, in which the students are taught how to care for, repair, and operate modern farm machinery. In the Senior year there is instruction in plant breeding, a subject which is of the utmost importance to one who would make the most of the opportunities in crop production. Instruction in agricultural experimentation deals largely with the application of the results which have been obtained by the experiment station, to the practical problems of the farm.

The equipment of the department includes the college farm and barns; also the farm machinery, consisting of a good line of tillage implements, fertilizer distributors, grain drill, and harvesting machinery. A well-equipped blacksmith shop is also provided.

Students have the advantage of the field experiments which are being conducted by the experiment station upon fertilizer problems and with various rotations.

Subjects.

II. Forage Crops.—History and development of the plants used for forage; silage, methods of construction of silos. *Two recitation credits per week, first term. Required of Sophomores in Agriculture.*

III. Soils and Fertilizers.—Origin and constituents of soils; texture, moisture, drainage, methods of tillage. Farm manures, artificial manures, composition and use; formulas for various crops. *Four recitation and one and one-half laboratory credits per week, first term. Required of Juniors in Agriculture. Option for Juniors in Applied Science. Prerequisite: Chemistry* I *and* II.

IV. Farm crops.—Origin and history; production and place in the rotation of clovers, grasses, and root crops. *Three recitation credits and one laboratory credit per week, second term. Required of Juniors in Agriculture. Option for Juniors in Applied Science. Prerequisite: Botany* I *and* II.

VI. Farm Machinery.—Development of farm machinery, methods of construction, function, and operation. *Two recitation credits and one laboratory credit per week, second term. Required of Juniors in Agriculture.* Mr. Burdick.

VII. Farm Management.—Discussion of agricultural methods, choice of a farm, capital, marketing, types of farming, accounts. *Two recitation credits per week, second term. Required of Juniors in Agriculture. Prerequisite: Agronomy* III *and* IV.

VIII. Farm Management (advanced).—Individual problems of farm management are assigned. Abandoned farms will be visited and a critical study made of the existing conditions. *Two recitation credits per week, first term. Option for Seniors in Agriculture.*

IX. Literature.—History of agricultural and horticultural literature; a study of the different types of agricultural literature as illustrated by ancient and modern authors. Reports upon special topics. *Two recitation credits per week, second term. Option for Seniors in Agriculture.*

X. Agricultural Experimentation.—Objects, methods, and results of agricultural experimentation. A study of federal and state aid to agriculture as shown in the work of the United States Department of Agriculture and the Experiment Stations. *Three recitation credits per week, first term. Required of Seniors in Agriculture.*

XI. Plant Breeding.—A discussion of the development of plants under cultivation; with reference to heredity, environment, variation, and selection. *Three recitation credits per week, first term. Required of Seniors in Agriculture. Option for Seniors in Applied Science. Prerequisite: Botany* I *and* II.

A. Soils and Fertilizers.—An elementary course upon the origin and nature of soils. Fertilizers; natural and artificial manures; preparation and use; fertilizer arithmetic. *Four recitation credits and one laboratory credit per week, second term. Required of Short-Course students in Agriculture, first year.*

B. Crops and Rotations.—Methods of culture and uses of the grasses, clovers, cereals, and root crops. Rotation for the various types of farms. *Three recitation credits and one laboratory credit per week, first term. Required of Short-Course students in Agriculture, second year.*

C. Farm Management.—An elementary course upon the principles of farm management, equipment, cost of production. *Four recitation credits per week, second term. Required of Short-Course students in Agriculture, second year.*

D. Farm Machinery.—Care and repair of farm implements. *One recitation and two laboratory credits per week, second term. Required of Short-Course students in Agriculture, second year.* Mr. Burdick.

ANIMAL HUSBANDRY.

PROFESSOR PUTNEY, MR. BURDICK, MR. LAMBERT.

Instruction in animal husbandry is so arranged as to furnish practical as well as theoretical instruction in the selection, care, and management of the live stock on the farm. Instruction commences in the second term of the Freshman year, with a study of the breeds, their care, and judging of types. These courses aim to provide a large amount of practical work in combination with the theoretical. In the Junior year attention is directed to dairying; and in the Senior year the work includes advanced judging, the management of purebred herds, flocks, and studs, and the scientific study of feeding farm live stock.

Instruction in poultry culture is given during the second term of the Freshman year, and is both theoretical and practical. In the Senior year an option is offered in advanced poultry judging. The equipment is particularly strong on the poultry side. The college poultry plant enables one to obtain a large amount of practical experience in incubation, brooding, and management. In addition to the poultry in the college yards, the students have opportunity to follow the investigations which are now being conducted by the experiment station. In addition to the subjects mentioned below, there is a six-weeks' course in poultry keeping during the winter months, full information concerning which may be obtained by addressing the president of the college.

Subjects.

I. Stock Judging.—Scoring and comparison of various types of horses, cattle, sheep and swine. Study of the special purpose or special type animal. *Two laboratory credits per week, second term. Required of Freshmen in Agriculture.* Professor Putney.

II. Advanced Judging.—Practice in judging and detail study of types. Herd testing methods. Tracing of pedigrees. *Two laboratory credits per week, first term. Option for Seniors in Agriculture.* Professor Putney.

III. Breeds.—History and character of the principal breeds of farm animals. Study of conditions to which each is adapted. *Two recitation credits per week, second term. Required of Freshmen in Agriculture.* Professor Putney.

IV. Principles of Breeding.—A study of the science and art of breeding. Discussion of the laws of heredity as applied to improvement of animal types. *Three recitation credits per week, second term. Required of Seniors in Agriculture. Option for Seniors in Applied Science. Prerequisite: Animal Husbandry* III *and Zoölogy* III. Professor Putney.

V. Management of Dairy Cattle.—This course covers the field of milk production in relation to the producer rather than to the manufacturer. It includes the building up of the dairy herd; the proper care of dairy cattle under different conditions; the dairy barn; special problems of feeding for milk production; advertising; fitting for sale and show ring. *Two recitation credits per week, second term. Option for Seniors in Agriculture.* Professor Putney.

VI. Feeding Farm Animals.—Principles of animal nutrition. Feeding standards. Making up balanced rations. *Three recitations credits per week, first term. Required of Seniors in Agriculture. Option for Seniors in Applied Science. Prerequisite: Chemistry* IV *and* XIV. Professor Putney.

VII. Dairy Practice.—Lectures and laboratory practice in Babcock test and in handling milk and making butter on the farm. *One recitation and one and one-half laboratory credits per week, first term. Required of Juniors in Agriculture.* Mr. Burdick.

VIII. Dairy Practice.—Advanced work. Pasteurization. Starters. Testing for adulteration. Acidity. Moisture. *One recitation and two laboratory credits per week, second term. Option for Seniors in Agriculture.* Mr. Burdick.

IX. Research and Literature.—*Hours to be arranged, first term. Option for Seniors in Agriculture.* Professor Putney.

X. Veterinary Medicine.—Combating disease from the farmer's standpoint. Obstetrics. Injuries. *Three recitation credits per week, second term. Required of Seniors in Agriculture. Prerequisite: Zoölogy* III. Professor Putney.

XI. Farm Buildings.—Plans, location, and estimate on the various farm buildings. *Two laboratory credits per week, second term. Option for Juniors in Agriculture, and Seniors in Applied Science.*

XII. Poultry Craft.—A brief study of breeds, care, and management of all classes of fowls. *One laboratory credit per week, second term. Required of Freshmen in Agriculture. Option for Seniors in Applied Science.* Mr. Lambert.

XIII. Judging Poultry.—Practice in scoring and judging all classes of fowls. *Two laboratory credits per week, second term. Option for Seniors in Agriculture.* Mr. Lambert.

XIV. Poultry Husbandry.—Special subjects to be assigned. *At least two laboratory credits per week, throughout the year. Option for Seniors in Agriculture.* Mr. Lambert.

XV. Management of Beef Cattle and Horses.—During the first nine weeks the course will cover practical methods of beef production. Studies will be made of successful practices in feeding for the market as well as advertising, fitting for sale and show ring, and the general care and management of beef cattle. During the last nine weeks, similar studies will be made in horse production, including market classes of horses, their production and utility, and successful methods of handling and training horses. *Two recitation credits per week, first term. Option for Seniors in Agriculture.* Professor Putney.

XVI. Management of Sheep and Swine.—During the first nine weeks the best systems of sheep husbandry will be studied. This will include rearing for mutton and wool; production of spring lambs; fattening sheep and lambs for market; general care and management of the breeding flock; advertising, fitting for sale and the show ring. During the last nine weeks similar studies will be made in pork production, including a study of foodstuffs with reference to their adaptability to pork production. *Two recitation credits per week, second term. Option for Seniors in Agriculture.* Professor Putney.

A. Breeds.—Breeds of horses, cattle, sheep, and swine. Emphasis is placed on the type best fitted to the agriculture of New England. *Two recitation credits per week, first term. Required of Short-Course students in Agriculture, first year.* Professor Putney.

B. Stock Judging.—Judging of the various classes of animals and their adaptability to different purposes, as cattle for milk or beef production, horses for driving or draft. *Two laboratory credits per week, first term. Required of Short-Course students in Agriculture, first year.* Professor Putney.

C. Dairy Practice.—Babcock test for dairy products, production of sanitary milk, and butter making. *One recitation and two laboratory credits per week, first term. Required of Short-Course students in Agriculture, second year.* Mr. Burdick.

D. Stock Feeding.—Principles of nutrition. Compounding rations. *Three recitation credits per week, first term. Required of Short-Course students in Agriculture, second year.* Professor Putney.

E. Principles of Breeding.—A study of the selection of animals, heredity, and variation. *Two recitation credits and one laboratory credit per week, second term. Required of Short-Course students in Agriculture, second year.* Professor Putney.

F. Poultry Breeds and Care.—A study and comparison of the different breeds of poultry, care of incubators and brooders, methods of feeding for the production of meat and eggs. *One recitation and one laboratory credit per week, throughout the year. Required of Short-Course students in Agriculture, second year.* Mr. Lambert.

G. Care of Animals.—Housing, care, and management of farm animals. Practical directions for handling of stock on the farm. *Two recitation credits per week, first term. Required of Short-Course students in Agriculture, second year.* Professor Putney.

HORTICULTURE.

ASSISTANT PROFESSOR COBB, MR. GODIN.

The aim of the instruction in horticulture is to help the student to understand the practical and scientific problems which arise in the various lines of work included under this subject.

The headquarters of the department are in the horticultural building. The main building contains the office and recitation rooms, together with photographic rooms. Attached to this building are greenhouses of modern construction, containing over 8,000 square feet under glass, 3,000 square feet of which is used by the experiment station for fertilizer experiments. The remainder is devoted to college work, and thus affords an excellent opportunity to become familiar with the growth of plants under glass. The land devoted to the department comprises the college gardens; and the fruit orchards, containing over 150 varieties of fruit, which afford an excellent opportunity for the study of apples and pears especially. There is also a small vineyard. A collection of flowering shrubs enables the student in landscape gardening to study, in the natural state, the material used in this work.

Subjects.

I. Propagation of Plants.—Different methods, including seed testing. Soft, green, and hardwood cuttings. Layering, grafting, and budding. *One recitation and one laboratory credit per week, first term. Required of Freshmen in Agriculture and Applied Science.*

II. Vegetable Gardening.—Underlying principles and types of vegetable gardening; study of individual crops; text-book work. *Two recitation credits per week, first term. Required of Sophomores in Agriculture. Option for Juniors in Applied Science.*

III. Fruit Culture.—Fundamental principles of orcharding; soil, fertilizer, and cultivation. Methods of laying out orchards and planting. Tillage, pruning and spraying. Harvesting and storing fruits. Collateral reading and practical work. *Two recitation credits per week, first term. Required of Juniors in Agriculture. Option for Juniors in Applied Science.*

IV. Spraying and Pruning.—Preparation and application of spray mixtures; insecticides and fungicides. Methods of application for different orchard enemies, and machinery used. Pruning of trees and ornamental shrubs. *One recitation and one laboratory credit per week, second term. Required of Freshmen in Agriculture. Option for Juniors in Applied Science.*

V. Greenhouse Construction and Management.—Study of the different types of glasshouse structures; methods of heating and ventilating. *One recitation and two laboratory credits per week, second term. Option for Seniors in Agriculture.*

VI. Floriculture.—History of floriculture. Study of greenhouse plants, collectively and individually; practical work in propagation, potting, watering, ventilating, fumigating, and spraying. Study of bulbs, bedding plants; palms and ferns. *One recitation and one laboratory credit per week, second term. Option for Seniors in Agriculture and Applied Science.*

VIII. Literature of Horticulture.—See Agronomy IX.

IX. Assigned Work.—Special subjects chosen by the student. *Option for Seniors in Agriculture. Hours to be arranged.*

X. Varieties of Fruits.—Orchard and bush fruits. Study of types; origin, and history; classification, description, and methods of handling. Orchard management. *Two recitation credits and one laboratory credit per week, first term. Option for Seniors in Agriculture. Prerequisite: Horticulture* III.

XI. Advanced Vegetable Gardening.—Study of one or more crops selected by student. Practical work, research work, and text-book. *One recitation credit per week, first term. Option for Seniors in Agriculture.*

XII. Plant Breeding.—See Agronomy XI.

XIII. Landscape Gardening.—Origin, history, and underlying principles. Practical work in the laying out of grounds, formation of walks and drives; methods of planting for different effects; home planting. *Two recitation credits and one laboratory credit per week, throughout the year. Required of Seniors in Agriculture. Option for Seniors in Applied Science. Prerequisite: Botany* I *and* II.

XIV. Arboriculture.—Study of ornamental trees, shrubs, and other plants, both native and exotic, which are used in landscape gardening. This course is designed to enable the student to become familiar with the character, habit and adaptation of ornamental plants. *One recitation and one laboratory credit per week, first term. Option for Seniors in Agriculture.*

XV. Tree Surgery.—A study of methods used in treating diseases of trees and shrubs. Treatment of insect injuries, preventive and remedial measures to be used in case of neglect, and mechanical injuries, such as chaining and bolting. Cement filling of cavities. *One recitation and two laboratory credits per week, second term. Option for Seniors in Agriculture.*

A. Vegetable Gardening. — Fundamental principles of vegetable growing. Practical work in cold frames, hotbeds, and garden planting. *Two recitation credits and one laboratory credit per week, second term. Required of Short-Course students in Agriculture, second year.*

B. Fruit Culture.—Study of fruits; propagation; planning fruit gardens and plantations; harvesting and packing; care. *Three recitation credits per week, first term. Required of Short-Course students in Agriculture, second year.*

C. Nursery Practice.—Propagation by seed, cuttings, grafting, budding, starting, and care of nursery. Selection of stock, and initial pruning. *One recitation and one laboratory credit per week, second term. Required of Short-Course students in Agriculture, first year.*

D. Floriculture.—Propagation of flowering plants, care of window gardens, design of flowerbeds and borders. *Two laboratory credits, second term. Required of Short-Course students in Domestic Science, first year.*

E. Spraying and Pruning.—A study of the methods used in combating insect pests and plant diseases. Preparation and application of fungicides and insecticides. Study of nozzles, pumps, etc. *One recitation and one laboratory* *credit per week, second term. Required of Short-Course students in Agriculture, second year.*

F. Home Grounds.—A study of the materials to use, the essential principles of the art. Practice in designing, planting, and care of home grounds. *Two recitation credits per week, second term. Required of Short-Course students in Agriculture, second year.*

Botany.

PROFESSOR MERROW, MR. MILES.

The aim of the department is to give a general knowledge of plant life, followed by subjects of an economic nature. The college is well located for carrying on this line of work. The native flora is extensive, and an abundance of material is furnished by the cultivated plants of the gardens and fields of the college farm. The green houses supply fresh material for winter use, and the herbarium of 4,500 specimens is a useful reference collection. The laboratory is equipped with dissecting and compound microscopes, a microtome, paraffin bath, and simple physiological apparatus. Charts and models are provided for lecture demonstrations. A good working library, including several American and foreign periodicals, is an important factor in the outfit for botanical instruction.

Subjects.

I. General Botany.—A study of common plants, their structure, physiology evolution, and adaptation to environment. The work includes a brief study of molds, yeasts, and bacteria, designed as an introduction to problems in which these organisms play a part. *Two laboratory credits and one recitation credit per week, throughout the year. Required of Freshmen in Agriculture, Applied Science, and Home Economics.*

II. Economic Botany.—The systematic botany of crops and weeds. *Two laboratory credits and one recitation credit per week, first term. Required of Sophomores in Agriculture and Applied Science.*

III. Trees and Shrubs.—The determination of native and introduced trees and shrubs in summer and winter condition. *One laboratory or field credit per week, throughout the year.* May be elected by students having a minimum of six credits in Botany.

IV. Forestry.—The management of New England wood lots. *Two credits per week, second term. Given in alternate years, 1912, 1914. Required of Juniors or Seniors in Agriculture. Elective in Applied Science.* Mr. Miles.

V. Histology.—Seed plants are studied by the usual histological methods of imbedding, sectioning, and staining. *Four laboratory credits and one recitation credit per week, first term. Elective.*

VI. Pathology.—Diseases caused by parasitic fungi and the remedies for them. *Four laboratory credits and one recitation credit per week, second term. Elective.*

VII. Assigned Work.—*Three credits throughout the year. Elective for Seniors in Applied Science and Agriculture.*

A. Plant Life.—Elementary agricultural botany. *Two laboratory credits and one recitation credit per week, throughout the year. Required of Short-Course students in Agriculture and Domestic Science, first year.*

Chemistry.

DR. LEIGHTON, MR. SMITH, DR. HARTWELL.

Instruction in this department begins in the Freshman year with experimental lectures, recitations, and laboratory practice in general and descriptive chemistry. The work is designed to give a thorough elementary knowledge of theoretical and descriptive inorganic chemistry, including the principal technical processes, and a brief account of the carbon compounds. As much attention as is practicable in a general course is given to the applications of the science to the problems of life. Two periods per week for the first half-year and three for the second half-year are devoted to the lectures and recitations, and three hours per week for a half-year to the practical work in the laboratory, where the student has an opportunity to verify some of the chemical theories and to become familiar with substances and their chemical behavior. During the second half of this year the laboratory period is devoted to qualitative analysis, which continues through the first half of the Sophomore year. The subject is taught in part by means of recitations and lectures, but mainly by work in the laboratory. Students are required to complete a systematic course in basic and acid analysis, and to analyze correctly a number of alloys, salts, and minerals.

Quantitative analysis is taught mainly by laboratory practice, but sufficient time is devoted to lectures and recitations to teach thoroughly the fundamental principles involved. The work comprises gravimetric and volumetric analysis, and the quantitative determination of salts, alloys, ores, minerals, and commercial and food products. In the course in technical gas analysis the student analyzes such gases as air, and illuminating and chimney gases. The work in assaying is designed to familiarize the student with the practical methods of sampling and assaying gold, silver, and lead ores. Determinative mineralogy, which includes blow-pipe analysis and crystallography, is taught by recitations and laboratory work. The student learns the physical properties of the common minerals, and their identification. The above subjects cover a comprehensive study of analytical chemistry, and are intended to give the student such theoretical and practical knowledge as to prepare him for analytical work of any kind.

The study of organic chemistry begins with a short course, designed to cover the general principles and methods, and to include a description of the more important compounds. The subject is continued by those who wish to specialize in chemistry in a more extended course covering the aromatic series and the chemistry of the dyestuffs, and accompanied by laboratory work in organic preparations and analysis. The theoretical and basic principles of chemistry, with their general application, are thoroughly studied by recitation, lectures, and laboratory work in the course in physical chemistry.

The descriptive side of industrial chemistry, which comprises a general survey of the technical applications of chemical principles to the arts and industries, is studied by recitation work; while practical technical operations, such as textile coloring, suited to the needs of the individual student, are studied by laboratory practice. The principles and practice of the industrial preparation of iron, steel, and other metals from their ores are taught by recitation and lecture work in the course in metallurgy.

Agricultural chemistry, required of agricultural students in the Junior year, embodies the chemistry of soils and fertilizers, also the chemistry involved in the changes which take place during the growth of animals and plants, as well as in the storage or manufacture of the ordinary farm products.

Subject XXI is intended to familiarize the student with the general field of chemical literature, and to inculcate the habit of keeping up with the recent advance in chemical science by reports and discussion of articles appearing in the chemical journals. This course is preparatory for Subject XX, which involves original investigation.

The laboratory is supplied with water, gas, and compressed air at each desk; it is also well equipped with apparatus for the subjects mentioned below. Among the more important pieces of apparatus are a polariscope, microscope, sodium press, hot-air engine, five analytical balances, one assay balance, filter press, Wheatstone bridge, combustion furnace, bomb furnace, assay muffle, crucible and roasting furnaces, ore crusher and grinder.

A good working library, containing a large number of German, French and English chemical journals, is also accessible.

Subjects.

I. General Chemistry.—*Two recitation and one and one-half laboratory credits per week, first term. Required of Freshmen in all courses.* Mr. Smith.

II. General Chemistry and Qualitative Analysis.—*Three recitation and one and one-half laboratory credits per week, second term. Required of Freshmen in all courses.* Dr. Leighton.

III. Qualitative Analysis.—Basic and acid analysis; analysis of salts, industrial and natural products. *Three laboratory credits per week, first term. Required of Sophomores in all courses.* Dr. Leighton.

IV. Organic Chemistry.—*Three recitation credits and one laboratory credit per week, second term. Required of Sophomores in Chemical Engineering, Home Economics, Agriculture, and Applied Science. Elective for others who have completed Chemistry* III. Mr. Smith.

V. Organic Chemistry (advanced).—To be given alternate years. Given next in 1913. *Three recitation credits and one laboratory credit per week, first term. Required in Chemical Engineering and of those who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry* IV. Dr. Leighton.

VI. Organic Chemical Laboratory.—*Three laboratory credits per week, second term. Required of Juniors in Chemical Engineering and of those who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry* IV. Mr .Smith.

VII. Quantitative Analysis.—Gravimetric and volumetric analysis. Analysis of minerals, ores, alloys, and industrial products. *Three laboratory credits per week, first term. Required of Juniors in Chemical Engineering and of those who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry* III. Mr. Smith.

VIII. Quantitative Analysis.—*Four and one-half laboratory credits per week, second term. Required of Juniors in Chemical Engineering and Juniors who take the Chemical Option in Applied Science. Elective for those who have completed Chemistry* III. *Three laboratory credits per week, first term. Required of Seniors in Chemical Engineering.* Mr. Smith.

X. Quantitative Analysis.—Food Analysis. *Four laboratory credits, first term. Required of Seniors in Home Economics. Elective for others who have completed Chemistry* IV. Mr. Smith.

XI. Determinative Mineralogy.—*One and one-half laboratory credits per week, second term. Required of Juniors in Chemical Engineering and of Juniors who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry* III. Mr. Smith.

XII. Physical Chemistry.—To be given alternate years. Given next in 1912. *Three recitation credits and one laboratory credit per week, first term. Required in Chemical Engineering and of those who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry* III. Dr. Leighton.

XIII. Metallurgy.—*Two recitation credits per week, second term. Required of Seniors in Chemical Engineering. Elective for others who have completed Chemistry* II. Mr. Smith.

XIV. Agricultural Chemistry.—*Three recitation credits and one laboratory credit per week, first term. Required of Juniors in Agriculture. Prerequisite: Chemistry* (I–IV). Dr. Hartwell.

XV. Gas Analysis.—See Mechanical Engineering XV.

XVI. Industrial Chemistry.—*Four recitation credits per week, second term. Required of Juniors in Chemical Engineering and of Seniors who take the Chemical Option in Applied Science. Elective for others who have completed Chemistry,* IV. Mr. Smith.

XVII. Industrial Chemistry.—The work under this subject may be varied to suit the needs of individual students; including such subjects as technical analysis and textile coloring. *Three laboratory credits per week, second term. Required of Seniors in Chemical Engineering and of Seniors who take the Chemical Option in Applied Science. Elective for those who take Chemistry* XVI. Dr. Leighton.

XVIII. Assaying.—*Two laboratory credits per week, second term. Required of Seniors in Chemical Engineering.* Mr. Smith.

XIX. Physiological Chemistry.—*Four credits per week, second term. Required of Juniors in Home Economics.* Dr. Leighton.

XX. Assigned Work.—*Three credits per week, throughout the year. Required of Seniors in Chemical Engineering and Seniors who take the Chemical Option in Applied Science.* Dr. Leighton.

XXI. Reports and Discussion of Chemical Subjects and Recent Investigations.—*One credit per week, throughout the year; required of Juniors and Seniors in Chemical Engineering. Option for Juniors and Seniors in Applied Science.* Dr. Leighton.

XXII. Electro-Chemistry.—*Three credits per week, second term. Required of Seniors in Chemical Engineering and of Seniors who take the Chemical Option in Applied Science.* Dr. Leighton.

A. Chemistry of Plant and Animal Life.—*Three recitation credits and one laboratory credit per week, throughout the year. Required of Short-Course students in Agriculture and Domestic Science, second year* Mr. Smith.

Freehand Drawing.

MISS ELDRED.

The aim of the subjects described below is to supply the practice in drawing necessary for subsequent work in the science laboratories, to give an elementary knowledge of the history of art, and to develop some appreciation of the beautiful in art and nature. For the first term, the work comprises outline drawing in pencil, mainly from plant and animal forms. The work of the second term includes some consideration of perspective and of the principles of design. In the first term of the Sophomore year the home economics students consider the subject of color,—the principles of color harmony, and the use of color in design and decoration. The object of this work is to develop appreciation of color and to enable the student to exercise a more intelligent and sensitive discrimination in its use. In the Junior year, special work is arranged for the first term to accompany and illustrate the home economics course, treating of the arrangement and decoration of the house. The brief course in the history of art aims to give some familiarity with the greatest achievements of past and present in architecture, sculpture, and painting. The department has a considerable equipment of illustrative material for this work, including a collection of about one hundred and fifty casts and over three hundred photographs of folio or larger size, with many smaller prints, among them two thousand University Prints, illustrating Greek and Roman sculpture, and the art of Italy, Germany, and the Netherlands.

Subjects.

II. Pencil Drawing from Objects.—*One laboratory credit per week, first term. Required of Freshmen in Agriculture. One laboratory credit per week, throughout the year. Required of Freshmen in Applied Science and Home Economics. Five laboratory credits per week, first term. Elective for Freshmen.*

III. History of Art.—*Two recitation credits per week, second term. Required of Juniors in Home Economics. Two recitation credits per week, first term. Required of Seniors in Home Economics.*

IV. Color Problems.—*One laboratory credit per week, first term. Required of Sophomores in Home Economics.*

V. Drawing in Charcoal from Still Life and the Cast.—*Two laboratory credits per week, second term. Elective.*

VI. Pen-and-ink Drawing, Water-Color, or Pastel.—*Two laboratory credits per week, second term. Elective.*

VII. Modeling.—*Two laboratory credits per week, second term. Elective.*

VIII. Work Illustrating Home Economics VII.—*One laboratory credit per week second term. Required of Juniors in Home Economics.*

IX. History of American Art.—*One recitation credit per week, second term. Elective.*

Economic and Social Science.

PRESIDENT EDWARDS.

Subjects.

I. Political Economy.—Text-book, supplemented by lectures, reading, and essays. *Four recitation credits per week, first term, first twelve weeks. Required of Seniors in all courses.*

II. Agricultural Economics.—The study of agriculture as an industry, from the point of view of political economy. Includes a study of the agricultural market; transportation of agricultural products; agricultural labor; farm ownership and tenancy; mortgages, etc. *Elective.*

III. Rural Sociology.—Movements of the farm population—causes and results; general social conditions of farmers, such as illiteracy, health, crime, etc.; personal and social traits developed by rural life; means of communication in rural communities; the rural school; agricultural education; the country church; farmers' organizations; federation of rural social forces. *Elective.*

Home Economics.

PROFESSOR THOMPSON.

The aim of this department is to give both theoretical and practical training in the economic administration of the home. The laboratory is situated in a building by itself, which is finished and furnished in such a manner as to demonstrate the sanitary principles involved in proper kitchen arrangements. It is amply equipped with the most recent scientific cooking-apparatus, inclusive of thermometers, metric scales, different kinds of stoves, and individual utensils. The work in chemistry, biology, etc., is, however, carried on in the laboratories of those departments. There is a good home economics library, and students are expected to make intelligent use of the main library in reference work, as well as to study those bulletins of the Department of Agriculture and such state reports as deal particularly with the subjects of food and nutrition.

Subjects.

I. Domestic Art.—A course in hand sewing; different kinds and combinations of stitches; drafting and cutting of patterns; machine practice; study of charts and tailoring systems; making of two undergarments and an unlined dress. *One laboratory credit per week, first term; and two laboratory credits per week, second term. Required of Freshmen in Home Economics.*

II. Elementary Cookery.—The economic use of fuels; the management of stoves and ranges; the study of cooking temperatures and processes; the care of utensils; practice in the cookery of a few typical foods. *One recitation and one laboratory credit per week, second term. Required of Freshmen in Home Economics.*

III. a. Personal Hygiene.—This course considers the aim of personal hygiene as the maintaining of the most efficient human machine for the life needs of the individual. It endeavors to give and establish ideals of health and efficiency. *One recitation credit per week, first term. Required of all women Freshmen.*

III. b. Euthenics.—The following topics are considered: environment of human life; problems of adaptation to modern conditions and progress; personal aim; individual responsibility; factors in human efficiency. *One recitation credit per week, second term. Required of all women Freshmen.*

IV. Foods.—A systematic study is made of the food constituents, their sources, chemical composition, properties, nutritive and economic values. This course is accompanied by laboratory practice in the preparation of many representative foods. Class demonstrations are given from time to time. *Three recitation and one and one-half laboratory credits per week, first term; two recitation and one and one-half laboratory credits per week, second term. Required of Sophomores in Home Economics. Prerequisites: Chemistry* I, II, *Home Economics* II.

V. Household Methods and Management.—Lectures and discussions upon general housework, the principles of laundering, marketing, apportionment of income, maintenance of standards, household administration, social, legal, industrial, and educational problems of the family. *Two recitation credits per week, first term. Required of Sophomores in Home Economics.*

VI. Human Nutrition.—Composition of the animal body and its daily food requirements; methods of investigation employed in studying the nutritive function of foods; the changes affected by cooking and by the processes of digestion; balancing of dietaries; food economy. *Three recitation credits per week, first term. Required of Juniors in Home Economics. Prerequisite: Chemistry* IV, *Zoölogy* III, *Home Economics* II, IV.

VII. Home Decoration.—A study of the evolution of the house; its adaptation to modern conditions; the principles to be followed in planning, furnishing, and decorating the house from a sanitary and artistic standpoint. *Two recitation credits per week, first term. Required of Juniors in Home Economics.*

VIII. Dietetics.—Problems in nutritive ratios; the balanced dietary; hygienic combinations of foods; construction of menus; adaptation of the diet to age, occupation, and different climatic conditions. *One recitation and one laboratory credit per week, second term. Required of Juniors in Home Economics. Prerequisite: Home Economics* VI.

IX. Sanitation.—This course deals with household and public hygiene. Study of health and the causes of disease; vital resistance; susceptibility and immunity; infection and contagion; pollution of food and water supplies; prevention and inhibition of infection, decomposition and decay. *Two recitation credits per week, second term. Required of Juniors in Home Economics.*

X. Food Preservation.—Study of the processes of decomposition, fermentation, and putrefaction; practice in preserving foods by drying, salting, and sterilization; preparation of jelly, pickles, and canned fruits; discussion of commercial preservatives. *One laboratory credit per week, first term. Required of Seniors in Home Economics. Prerequisite: Home Economics* IX.

XI. Hygiene and Care of Children.—A study of the physical development of children; care of infants and young children; school hygiene. *Two recitation credits per week, first term. Required of Seniors in Home Economics. Prerequisite: General Psychology. Open to Juniors and Seniors in other courses.*

XII. Home Nursing.—Care of the sickroom and patient; administration of medicines; recording of symptoms; accidents and emergencies; hygiene of infectious diseases; antiseptics and disinfectants. *Two recitation credits per week, second term. Required of Seniors in Home Economics. Prerequisite: Home Economics* IX.

XIII. Therapeutic Cookery.—This course includes the study of abnormal conditions of digestion and metabolism, relation of food to specific diseases, cookery for the sick and convalescent. *One recitation and one laboratory credit per week, second term. Required of Seniors in Home Economics. Prerequisite: Home Economics* IV, VI, VIII, X.

XIV. Assigned Work.—This may be a problem in the biological, chemical, physiological, or economic aspect of the work in Home Economics. *Three recitation and two laboratory credits per week, second term. Required of Seniors in Home Economics.*

XV. Teaching of Home Economics.—Purpose and method of the work; courses of study, equipment, etc. *One recitation credit per week, second term. Elective for Seniors in Home Economics.*

XVI. History of Home Economics.—Development of home economics movement; a study of the work as presented in different types of institutions, and its industrial, educational, and sociologic aspects. *One recitation credit per week, first term. Elective.*

XVII. Textiles.—A study of fabrics; processes and appliances studied with reference to their historic development; primitive industries; modern processes of manufacture; dyeing, spinning, and weaving. *Two recitation credits per week, second term. Elective. Prerequisite: History* I, *Home Economics* I.

XVIII. Dressmaking and Tailoring.—*Three laboratory credits per week, second term. Elective for students who have completed Home Economics* I.

XIX. Food Products.—Production, manufacture, and marketing of foods; factors affecting cost. *Two recitation credits per week, first term. Elective.*

XX. A Study of the Family.—Development of the domestic institutions; social ethics of the family; legal, industrial, and educational problems of the household. *Two recitation credits per week, second term. Prerequisite: Home Economics* V. *Elective.*

DOMESTIC SCIENCE.

A. Household Technique.—This course is planned to give a knowledge of the processes involved in household work. It deals with the handwork of cooking and cleaning; care of rooms, table setting and serving, etc. *Two recitation credits per week, first term, first year. Required of Short-Course students in Domestic Science.*

B. Sewing.—Hand sewing; use of machine; drafting of patterns. *One laboratory credit, first term, first year. Required of Short-Course students in Domestic Science.*

C. Food.—Study of the five food principles and their nutritive and physiological functions; practice in the cookery of vegetables, cereals, fruits, milk, eggs, and meats. *Three recitation and one and one-half laboratory credits per week, second term, first year. Required of Short-Course Students in Domestic Science.*

D. Dietetics.—Provides instruction in advanced cooking; special cooking for sick and convalescent; planning of meals; discussion of dietaries. *Three recitation and one and one-half laboratory credits per week, first term, second year. Required of Short-Course students in Domestic Science.*

E. Management of the House.—Considers the materials, qualities, amounts, and cost of house furnishing and supplies; lessons in marketing. *One recitation credit per week, second term, second year. Required of Short-Course students in Domestic Science.*

F. Hygiene.—Study of the living machine, its mechanism and functions; the right use and proper care of the human mechanism; home nursing and emergencies. *One recitation credit per week, second term, second year. Required of Short-Course students in Domestic Science.*

G. Textiles.—Study of the clothing fabrics; dressmaking. *One and one-half laboratory credits per week, second term, second year. Required of Short-Course students in Domestic Science.*

Psychology and Education.

DR. SECHRIST, ASSISTANT PROFESSOR SPENCER.

The courses in education provide instruction in the theory of the subject as derived from general and educational psychology, and the history of education, besides giving the practical point of view in connection with the work in secondary education. As a part of this work visits are made to representative high schools convenient to the college for the purpose of studying the administrative and instructional phases of secondary education with special reference to the courses in science.

I. History of Education.—Study of educational theory and practice from the historical point of view with special reference to modern scientific and industrial education. *Three recitation credits per week, first term. Required of Seniors in Applied Science and Home Economics.*

II. Psychological Principles of Education.—Study of the principles of teaching from the psychological point of view. *Two recitation credits per week, first term. Required of Seniors in Applied Science. Prerequisite: General Psychology.*

III. Secondary Education.—Principles of teaching, with special reference to the aims of the secondary school; organization, management, and method in the high school. *Two recitation credits per week, second term. Required of Seniors in Applied Science. Prerequisite: Psychology and Education* II *and* IV.

IV. General Psychology.—Structure and functions of mental life. Study of text-book is supplemented with experiments and with lectures on the practical applications of psychology. *Three recitation credits per week, first term. Required of Juniors in Applied Science and Home Economics.*

V. Ethics.—Study of ethical principles, with special reference to the problems of individual and social life. *Two recitation credits per week, second term. Elective for Seniors in Home Economics.*

VI. Esthetics.—Study of esthetic principles from the psychological point of view. *Two recitation credits per week, second term. Elective for Seniors in Home Economics. Prerequisite: Psychology and Education* IV.

VII. Sociology.—Text-book work and assigned readings. *Three recitation credits per week, second term. Required of Seniors in Home Economics.*

Mechanical Engineering.

PROFESSOR WALES, MR. ELDRED, MR. EAMES, MR. PEASLEE.

It is the object of the work in the department of mechanical engineering to turn out broad-gauged, self-dependent men, well trained in engineering theory, familiar with the practical matters of construction and operation, and having some knowledge of the economic relations which the engineer and industrial development bear to modern society. In the endeavor to train men who will touch life, not at one point, but at many, the work of the department is supplemented and rounded out by extended and vigorous courses along the lines of electrical engineering, physics, mathematics, chemistry, English, history, modern languages, and political economy. The special work of the department of mechanical engineering divides itself naturally into the following general groups: shop practice, design, steam engineering, and experimental engineering. Each of the above groups is amplified and briefly described below:

SHOP PRACTICE.

The object of this work is to give familiarity with principles, operations, possibilities, and management, rather than to develop the greatest dexterity in manipulation. Shop practice extends over three years of the course, and comprises forging and foundry work, pattern making, and machine-tool operation. The shops are exceptionally well equipped with machines and tools of all kinds. In the machine shop are six metal lathes, speed lathes, planes, 16-in. shaper, two drills, two tool grinders, drill grinder, milling machine, punching-press, vertical boring and turning mill, together with the usual assortment of tools and auxiliaries. The pattern shop is provided with lathes, circular saw, band saw, jig saw, dowel machine, surface and buzz planers, etc. Fifteen work-benches fully provided with the small tools of the pattern maker complete the equipment. The forge shop is equipped with the usual anvils, forges, fullers, swages, hardies, etc., while a full stock of patterns, shovels, riddles, flasks, and trowels is provided for the work in foundry practice. Enthusiasm is given to the work by the construction of things of real value—a new machine for the shop or a piece of apparatus for the laboratory—instead of spending the whole time on worthless "exercises."

DESIGN.

The work along the lines of design extends throughout the four years, beginning with freehand and mechanical drawing and ending with machine design and power-plant design in the Senior year. Leading up to this final work are the terms of mechanical drawing, descriptive geometry, mechanism, valve gears, dynamics of machines, mechanics, strength of materials, hydraulics, and thermo-dynamics. All the forces of correct theory and the practice of the most successful builders are brought to bear upon the solution of definite, practical problems.

STEAM ENGINEERING.

Steam engineering begins in the Junior year and runs through the remainder of the course. A rigorous study of the mathematical theory of thermo-dynamics supplies the foundation for the study of boilers and engines, design and economy, and the various devices and auxiliaries of the power plant. In the Senior year is considered the particular branch of heating and ventilating. In this year, also, the subject of power plants is taken up, which applies all the previous training in steam engineering, and which brings together and unifies all allied subjects.

EXPERIMENTAL ENGINEERING.

This subject, which extends throughout the Junior and Senior years, is intended to fix the theory developed in all the other lines of work. Instruction is given by means of lectures and laboratory tests. The student becomes familiar with the theory, construction, use, and calibration of the instruments and apparatus used by the engineer, and gains experience in making accurate standard and special tests. The work is divided into four groups: one dealing with the chemical problems of engineering—testing of gases, oils, fuels, feed water, etc.; a second, with general calibration and testing; a third, with the study and tests of structural materials; and the fourth, with general power-plant testing. In power-plant testing the students make the necessary plans and preparations, perform the experimental work, and prepare formal reports, with recommendations for improvement in economy, etc. These tests are made not only on the college power-plants, but on those of manufacturing establishments of the state. The equipment for experimental work comprises several boilers and steam engines, large steam pump, gas engines, feed-water heaters, several steam and gas engine indicators, steam calorimeters, tanks, scales, injectors, water turbine, hydraulic ram, pulsometer, centrifugal pump, belt pump, weirs, two-stage air compressor, air-brake outfit, meters, gauges, 50,000-lb. tension and compression machine, apparatus for oil and gas testing, fuel calorimeter, complete outfit for testing cements and concretes, etc. Throughout the work the greatest stress is laid upon the correct calculation and interpretation of results, and accuracy and self-dependence are developed to the fullest.

Subjects.

I. Mechanical Drawing.—Lettering, freehand sketching, use of drafting tools, geometrical problems, projections, machine parts. *Three laboratory credits per week, first term; two laboratory credits per week, second term. Required of Freshmen in Engineering. One and one-half laboratory credits per week, first term. Required of Juniors in Home Economics.* Mr. Eames.

II. Forge and Foundry.—Forging, drawing, bending, welding, etc. Principles of moulding, core making, and casting. *Three laboratory credits per week, first term. Required of Freshmen in Engineering and Short-Course students in Engineering, first year.* Mr. Eldred.

III. Pattern Making.—Use of tools, bench and lathe work, pattern making. *Three laboratory credits per week, second term. Required of Freshmen in Engineering and Short Course students in Engineering, first year.* Mr. Eldred.

IV. Graphic Statics.—Force and funicula polygons with applications in the determination of stresses in framed structures. *Two recitation credits per week, second term. Required of all Sophomores in Engineering.* Mr. Eames.

V. Descriptive Geometry.—Elementary principles; problems relating to the point, line, plane, cylinder and double curved surfaces of revolution, intersections, and developments. *One recitation and two laboratory credits per week, first term. Required of all Sophomores in Engineering.* Mr. Eames.

VI. Mechanical Drawing.—Detail and assembly drawings, elementary machine design. *Three laboratory credits per week, second term. Required of Sophomores in Mechanical, Electrical, and Civil Engineering.* Mr. Eames.

VII. Machine Shop.—Hand work in chipping and filing, use of machine tools, construction of machines. *Three laboratory credits per week, second term. Required of Sophomores in Electrical Engineering. Three laboratory credits per week, throughout the year. Required of Short-Course students in Engineering, first year. One and one-half laboratory credits per week, second term. Required of Sophomores in Civil Engineering.* Mr. Eldred.

VIII. Machine Drafting.—Technique of machine drafting, application of kinematics to the design of gears, valves, linkages, quick-return motions, etc. *Three laboratory credits per week, first term. Required of Juniors in Mechanical Engineering.* Mr. Eames.

IX. Heat Engineering—Thermo-dynamics.—Mathematical development and discussion of the laws of thermo-dynamics, and their application to perfect gases, saturated and superheated steam. Theory of air compressors, pneumatic machinery, hot-air engines, gas engines, and refrigerating machines. Boilers, engines, engine economy, effect of cylinder walls, compounding, superheating, use of jackets, varying cut-off, speed, pressure, etc. Flow of fluids, injectors, and thermo-dynamic principles applied to the steam turbine. *Three recitation credits per week, throughout the year. Required of Juniors in Mechanical and Electrical Engineering; and for twenty-seven weeks, of Juniors in Chemical Engineering.* Professor Wales.

X. Applied Mechanics.—Forces, composition and resolution, parallel forces, moments, couples, centres of gravity, velocity, acceleration, energy and momentum, falling bodies and projectiles, centrifugal force, moment of inertia, radius of gyration, angular momentum, energy of rotating bodies, impact, etc. Strength of material, stresses in structures, riveted joints, beam theory, struts, columns, shafting, springs, etc. Solution of practical problems. Text, Lanza's Applied Mechanics. *Five recitation credits per week for twenty-four weeks. Required of Juniors in Mechanical, Electrical, and Civil Engineering, and of Juniors in Chemical Engineering for the first term.* Professor Wales.

XI. Hydraulics.—General principles, head and pressure, center of pressure, velocity of discharge, flow through orifices and over weirs, Bernouilli's theorem, flow through pipes, flow through conduits and canals, energy of flow, horse-power, hydraulic machinery, rams, turbines, centrifugal pumps, and Pelton wheels. Merriman's Treatise on Hydraulics. *Five recitation credits per week, for last twelve weeks of second term. Required of Juniors in Mechanical, Electrical, and Civil Engineering.* Professor Wales.

XII. Mechanism.—Instantaneous centers, centroids, lobed wheels, belts, pulleys, four-bar linkages, graphical determination of velocity ratios, quick-return motions, straight-line motions, pantographs, trains of gears, epicyclic trains, tooth gearing, epicycloidal and involute teeth, bevel wheels, etc. Schwamb and Merrill's Mechanism. *Three recitation credits per week, second term. Required of Sophomores in Mechanical and in Chemical Engineering.* Mr. Eames.

XIII. Valve Gears and Dynamics.—Plane slide valves, piston valves, riding cut-off valves; Joy and Marshall gears; Stephenson, Gooch, and Walscheart link motions; drop cut-off valves; Corliss, Brown, and Putnam valves. Peabody's Valve Gears. Lectures and references. *Three recitation credits per week, second term. Required of Juniors in Mechanical Engineering.* Mr. Eames.

XIV. Machine Shop (continuation of subject VII.)—Advanced work in machine construction. *Three laboratory credits per week, throughout the year. Required of Juniors in Mechanical Engineering, and Short-Course students in Engineering, second year.* Mr. Eldred.

XV. Experimental Engineering a.—Lectures and laboratory work in gases, oils, and fuels; flue-gas analysis, calculation of air per pound of coal, loss due to excess air and to imperfect combustion; analysis of fuel gases and calculation of heating values; determination of heating values by the Junkers and Parr calorimeters; study of gases in producer and gas-engine work. *Two laboratory credits, first term. Required of Juniors in Mechanical and Electrical Engineering, and Seniors in Chemical Engineering.* Professor Wales.

XVI. Experimental Engineering b.—General calibration and testing of engineering instruments and apparatus; gauges; planimeter; manometers; indicators; Prony brakes; scales; valve setting by measurement and by the indicator; Carpenter calorimeter; Peabody calorimeter; flow through orifices; weirs; nozzles; Pitot tube; meters; Venturi meters; hydraulic ram; turbine, etc. *Two laboratory credits per week, second term. Required of Juniors in Mechanical, Electrical and Civil Engineering.* Professor Wales and Mr. Eames.

XVII. Experimental Engineering c.—Properties of materials. Lectures on the metallurgy of iron and steel; effects of impurities; cold-working; repeated stresses; tensile, compressive, and shearing strengths; ductility; resilience, etc.; copper, brass, bronze, and other alloys; timber, stone, and brick. The manufacture of natural and Portland cements; effects of over-and under-burning, overliming, SO_3, etc.; discussion of tests and their interpretation. Laboratory work is parallel with lectures. Tensile strengths of cast-iron, wrought-iron, and steel; compressive strength of metals, timber, concrete, cement; shearing tests of metals; transverse tests of timber and iron; stress-strain diagram, elastic limit, yield point, modulus of rupture; tensile tests of cement; pat tests, boiling tests; specific gravity; fineness; time of set, etc. Determination of the best proportions of cement, sand, and rock of given characteristics. *Two lecture and two laboratory credits per week, first term. Required of Seniors in Mechanical, Electrical, and Civil Engineering.* Professor Wales and Mr. Eames.

XVIII. Experimental Engineering d.—Hot-air engine, gas engine, steam pump, injectors, transmission dynamometers; boiler tests; complete tests of power plants; outside work on the H. P. of a stream, with tests of hydraulic power plant; outside tests of manufacturing plants, with calculations, reports, and recommendations. *Two laboratory credits per week, second term. Required of Seniors in Mechanical Engineering.* Professor Wales.

XIX. Heating and Ventilation.—Discussion of the principles and practice of the various systems of heating and ventilating—direct and indirect, hot-air, hot-water, pressure steam, exhaust steam, vacuum systems, fans, blowers; calculation of ventilation and radiation; flues, pipes, and radiators; air troubles; central heating systems with central power plants; design of heating system for a given building. *One recitation credit per week, second term. Required of Seniors in Mechanical Engineering.* Professor Wales.

XX. Machine Design.—Design of machine parts from considerations of the motions involved, strength, rigidity, and friction; design of a complete machine; calculations with design of some type of engine, starting with given requirement of H. P., speed, etc., and with an assumed theoretical indicator card. *Three laboratory credits per week throughout the year. Required of Seniors in Mechanical Engineering.* Mr. Eames.

XXI. Power Plants and Power-Plant Design.—Study of the various types—as to choice, location, installation, and operation; prime movers, their accessories and auxiliaries.

Steam Plants.—Study of the effects on economy, range, and reliability of simple or compound, condensing or non-condensing engines with various valve gears, throttling and cut-off governors, different boiler installations, feed-water heaters, economizers, pressure regulators, pumps, injectors, mechanical stokers, forced and induced draft, chimneys, etc.; calculations of proper sizes, powers, and strengths of machines and apparatus of the power plant; methods of improving economy. The place of the steam turbine in power-plant work.

Hydro Plants.—Discussion of the types of hydraulic machinery, their efficiency, and the particular conditions to which each is best adapted. This will be a development of the previous work in hydraulics to meet the need of the power engineer.

Gas-Producer Plants.—The different suction and pressure producers, theory, capacity, future, etc.; gas engines, from both the thermo-dynamic and the mechanical points of view. *Two lecture credits and one laboratory credit per week, first term. Required of Seniors in Mechanical Engineering. Two lecture credits per week, first term. Required of Seniors in Electrical Engineering.* Professor Wales.

XXII. Assigned Work.—This may be of the nature of research or of specialized study along some particular line of engineering. Options are offered in theory of elasticity, advanced hydraulics, etc. *Three credits per week, throughout the year. Required of Seniors in Mechanical Engineering.*

XXIII. Dynamics of Machines.—Analysis of stresses, effects of inertia, balance, reciprocating parts, flywheels, design of high-speed engines and machinery. *Two recitation credits per week, second term. Required of Seniors in Mechanical Engineering.* Professor Wales.

XXIV. Works Management.—The economics of the shop and factory, cost-keeping, efficiency in production. *One lecture credit per week, second term. Required of Seniors in Mechanical Engineering.* Professor Wales.

XXV. Elements of Thermo-dynamics.—A non-mathematical discussion of boilers, engines, pumps, and power apparatus for civil engineers. *Three recitation credits per week, first term. Required of Juniors in Civil Engineering.* Mr. Cloke.

A. Mechanical Drawing.—Lettering, sketching, use of drafting tools, projection drawing, representation of machine parts. *Three laboratory credits per week, throughout the year. Required of Short-Course students in Engineering, first year.* Mr. Peaslee.

B. Mechanical Drawing.—Detail and assembly drawing, elementary machine design. *Three laboratory credits per week, throughout the year. Required of Short-Course students in Engineering, second year.* Mr. Peaslee.

D. Mechanical Movements.—Belts, pulleys, gearing, screw gearing, differential screws, tackles, hoists, hydraulic jacks, inclined planes, differential pulleys, pumps, crank and rocker, sliding and swinging block mechanisms, shafts, hangers, etc., cams and their design. *Three recitation credits per week, throughout the year. Required of Short-Course students in Engineering, first year.*

E. Engineering Theory.—An elementary discussion of types of engines, valve gears, governors, etc., boilers, types, corrosion and incrustation, combustion, methods of firing, draft, safety valves, boiler H. P. testing; lubricants and lubrication; gas engines, elementary study of materials; practical electricity. *Five recitation credits per week, throughout the year. Required of Short-Course students in Engineering, second year.*

F. Applied Electricity.—Elementary theory, wiring, motors, dynamos, etc. *One recitation credit and two laboratory credits per week, throughout the year. Option for Short-Course students in Engineering.*

Electrical Engineering.

PROFESSOR DICKINSON, MR. CLOKE, MR. PEASLEE.

The aim of the course in electrical engineering is to give the student such training in the fundamental principles of the subject as will fit him to take up, in an intelligent and effective manner, any line of engineering work requiring special electrical knowledge. Instruction is given in both classroom and laboratory, the aim of each method of instruction being to supplement the other, and to develop resourcefulness and the habit of independent thought on the part of the student.

Subjects.

I. Theory of Direct Currents.—A detailed study of the theory of direct-current apparatus. The theory of dynamos, motors, and auxiliary apparatus. *Three recitation credits per week, first term. Required of Juniors in Electrical Engineering and of Seniors in Mechanical Engineering.* Mr. Cloke.

II. Direct-Current Laboratory.—A course following Physics V, and consisting of tests of various types of direct-current apparatus. These include magnetization and characteristic curves of different types of machines, as well as tests for efficiency, regulation, temperature rise, and tests of a similar nature. *Three laboratory credits per week, second term. Required of Juniors in Electrical Engineering and of Seniors in Mechanical Engineering.* Mr. Cloke.

III. Electrical Measurements.—A course designed to familiarize the student with physical and electrical units, fundamental and derived; the electrical standards of E. M. F., current, and resistance; and with the methods employed in the simpler electrical measurements. *One recitation credit per week for last nine weeks, second term. Required of Sophomores in Electrical Engineering.* Mr. Cloke.

IV. Theory of Alternating Currents.—Recitations and lectures. The elements of the theory of alternating currents and of alternating-current machinery. This course includes the simpler theories regarding the action of A. C. dynamos, motors, converters, and transformers. *Two recitation credits per week, second term. Required of Juniors in Electrical Engineering and of Seniors in Mechanical Engineering.* Professor Dickinson.

V. Theory of Alternating Currents.—Recitations and lectures, continuing subject IV. The more advanced theories regarding the effect of inductance and capacity in A. C. circuits, and of the action of A. C. machinery, are discussed. Assigned readings and reports are a feature of the subject. *Three recitation credits per week, throughout the year. Required of Seniors in Electrical Engineering.* Professor Dickinson.

VI. Alternating-Current Laboratory.—A course consisting of tests of different types of alternating-current apparatus, such as single and polyphase generators and motors, induction motors, converters, and transformers. *Three laboratory credits per week, throughout the year. Required of Seniors in Electrical Engineering.* Professor Dickinson.

VII. Design of Electrical Machinery.—General principles of the design of electrical apparatus, including a direct and an alternating current generator. *Three laboratory credits per week, second term. Required of Seniors in Electrical Engineering.* Professor Dickinson.

VIII. Telephone Engineering.—A consideration of the development of the modern telephone, with special reference to the common battery systems. *One recitation credit per week, first term. Required of Seniors in Electrical Engineering.* Mr. Peaslee.

X. Transmission of Energy.—A study of systems of high-tension distribution, the effect of capacity and inductance, the construction of lines, their protection, and the troubles developing in high-tension work. *Two recitation credits per week, first term. Required of Seniors in Electrical Engineering.* Professor Dickinson.

XI. Electric Railway Engineering.—A discussion of the economic considerations in the development of an electric railway, methods of construction, the location of the generating station, the design of the distributing system, types of motors, and systems of control. *Two recitation credits per week, second term. Required of Seniors in Electrical Engineering.* Mr. Cloke.

XII. Assigned Work.—Thesis work is assigned to those Seniors possessing special aptitude for original research. Other students are assigned special work in the laboratories of the department. *Three laboratory credits per week, throughout the year.* Professor Dickinson.

Civil Engineering.

PROFESSOR WEBSTER, MR. BILLS.

It is the purpose of this course to give the student such training in the fundamental principles of engineering as to prepare him for the duties and opportunities that may be offered in the various fields of civil engineering. With this object in view, application of the theories and principles learned in the classroom is made in the field, laboratory, and drafting room. An effort is also made to give the student as liberal a training in the sciences and arts as his limited time will permit, but the primary purpose is to prepare him for one definite line of work.

In order to widen the scope of the student's opportunities, the name of the department has been changed from Highway Engineering to Civil Engineering, and corresponding changes have been made in the course of study. However, owing to the growing importance of highway engineering in this state and throughout the country in general, considerable emphasis is still placed on this phase of engineering work. The state appropriates annually a sum of money, which is expended under the direction of the instructor and students of the department, in the construction and maintenance of roads on the college property. In this way practical experience is obtained in highway engineering.

The equipment of the department consists of levels, transits, compasses, rods, tapes, chains, drafting instruments, etc., and testing machines, to which the student has access. He also has free use of the library, in which are found the leading engineering journals, and many of the principal works on various engineering subjects.

Subjects.

I. Surveying.—Instruction is given by means of recitations, field and laboratory work, in the theory, use, and adjustments of the compass, level, and transit. The field work includes the prolongation of straight lines, determination of distances, angles, areas, boundaries, corners, and exercises in leveling, etc.

Maps are made from the field notes. *One recitation and two field credits per week, first term. Required of Sophomores in Mechanical, Electrical, and Civil Engineering.*

II. Topographic Surveying.—A study is made of the theory and use of the plane table, and of the transit and stadia in making topographic surveys. A complete topographic survey based on a system of triangulation is made, including the completion of a map. *One recitation and two field credits per week, second term. Required of Sophomores in Civil Engineering.*

III a. Railroad Engineering.—The work consists of a reconnoissance, a preliminary and a location survey of a short line of railroad, for the purpose of giving the student sufficient work to familiarize him with the methods in actual practice. A set of notes is kept by each student, from which a map, a profile, and estimates are made. A study is also made of the properties of curves, switches, frogs, turnouts, and the spiral, and the methods of locating these in the field. *Five credits per week, divided between field and recitation as seems advisable, first term. Required of Juniors in Civil Engineering.*

III b. Railroad Engineering.—The principles of economic railroad construction and maintenance; railway appliances, ballast, and roadbed, culverts and trestles, turnouts, sidings, yards, terminals, signaling, locomotive and grade problems, betterment surveys, etc. *Three recitation credits per week, second term. Required of Juniors in Civil Engineering.*

IV. Graphic Statics.—Instruction is given in graphic statics and its application in the design of simple framed structures. *Two recitation credits per week, first term. Required of Juniors in Civil Engineering.*

V. Roads and Pavements.—The theoretical work of this course consists of a discussion of the principles and details involved in the location, construction and maintenance of earth, gravel, and macadam roads, together with a discussion of the methods of construction, durability, maintenance, and assessment of cost of the various kinds of pavements used on city streets. The field work consists in the construction of a gravel or macadam road on the college grounds. *Three recitation credits and one field credit per week, second term. Required of Juniors in Civil Engineering.*

VI. Bridge Details.—The work in this course consists in making a tracing of a shop drawing, estimating the weight and determining the efficiency of the various members of a highway bridge. *Two laboratory credits per week, first term. Required of Seniors in Civil Engineering.*

VII. Bridge Analysis.—Instruction is given in the computation of stresses in the various types of bridges by graphical and algebraic methods under different conditions of loading. *Two recitation credits per week, first term. Required of Seniors in Civil Engineering.*

VIII. Bridge Design.—The student designs a plate girder and a bridge, makes the shop details, and a set of working drawings. *Three laboratory credits per week, second term. Required of Seniors in Civil Engineering.*

IX. Masonry Construction.—This course deals with the materials of masonry, including brick, stone, lime, and cement; the theory of masonry structures, including foundations for buildings, bridges, and piers; the construction of retaining walls, culverts, bridge abutments; masonry dams and arches. The student is directed to important articles in the current literature of the subject, and a systematic and thorough laboratory course on cement testing is given. *Two recitation credits and one laboratory credit per week, first term. Required of Seniors in Civil Engineering.*

X. Reinforced Concrete—A study is made of the principles of mechanics underlying the design of reinforced concrete. Working stresses and economical proportions are considered, also the application of reinforced concrete construction to building construction, arches, retaining walls, dams, and miscellaneous structures. *Two recitation credits per week, second term. Required of Seniors in Civil Engineering.*

XI. Sewerage.—A discussion of the separate and combined systems of sewers; relation of rainfall to storm-water flow; hydraulics of sewers; removal of house sewage; the design and construction of sewers and method of sewage disposal. *Two recitation credits per week, first term. Required of Seniors in Civil Engineering.*

XII. Water Supply.—A discussion of the quantity of water required, sources of supply, flow of streams, and of ground water. Instruction is also given in the general arrangement of waterworks, loss of head in flow of water through pipes, stresses in dams and water towers. Works for the purification and distribution of water are discussed, including reservoirs, settling basins, pumping machinery, etc. *Three recitation credits per week, second term. Required of Seniors in Civil Engineering.*

XIII. Tunneling.—A study of the methods of making tunnel surveys and of the modern methods employed in tunnel construction. *One recitation credit per week, second term. Required of Seniors in Civil Engineering.*

XIV. Contracts and Specifications.—A study of the fundamental principles of the law of contracts, and their application to engineering work. *Two recitation credits per week, second term. Required of Seniors in Civil Engineering.*

XV. Assigned Work.—With the advice and consent of the head of the department, the student elects three hours' work in the Senior year. This may be research, thesis, or recitation and laboratory work, depending upon the qualifications of the student. *Three credits per week, throughout the year. Required of Seniors in Civil Engineering.*

XVI. Vacation Reading.—Systematic reading during vacations on some topic assigned by the head of this department.

XVII. Metal Structures.—The graphical determination of stresses in steel mill buildings. *One laboratory credit per week, second term. Elective for Seniors in Civil Engineering.*

XVIII. Irrigation Engineering.—This includes a study of the impounding, diverting, flow, and measurement of water, quantity acquired, canals, canal works, storage reservoirs, waterways, etc. *Three recitation credits per week, first term. Elective for Seniors in Civil Engineering.*

Geology and Mineralogy.

DR. WHEELER, DR. LEIGHTON, MR. SMITH.

GEOLOGY.—Under this subject historical geology is considered in outline, attention being given, also, to those phases of dynamical and structural geology which are particularly important. Special attention is given to rock weathering and soil formation, and to those characteristics of rocks which are of chief importance in connection with road coustruction.

DETERMINATIVE MINERALOGY.—A short course dealing with the elements of crystallography is given, together with the physical and chemical characteristics of minerals, especially that of rock-making minerals composing our soils. Laboratory work in blowpipe analysis and physical determination of minerals follows the crystallography.

Subjects.

I. Geology.—*Two recitation credits per week, second term. Required of Juniors in Civil Engineering and Sophomores in Agriculture.*

II. Mineralogy.—See Chemistry XI.

History.

PRESIDENT EDWARDS, ASSISTANT PROFESSOR SPENCER.

I. Social, Economic, and Industrial History of the United States.—*Four recitation credits per week, second term. Required of Juniors in all courses.*

II. Government and Politics in the United States.—*Four recitation credits per week, first term, last six weeks; and second term, first six weeks. Required of Seniors in all courses.*

A. English History. *Three recitation credits per week, throughout the year. Required of students in Domestic Science, second year.*

English and Modern Languages.

DR. SECHRIST, ASSISTANT PROFESSOR SPENCER, MISS MYRICK.

In all the college courses leading to a degree, English is required throughout the first three years and during twelve weeks of the Senior year. The first two years, a study is made of the principles of clear thinking and effective expression as exemplified in modern literary and scientific prose; however, the greater part of the time is devoted to the writing of themes and to oral expression, special stress being laid on exposition and argument. In the later and more advanced stages of the work, a systematic study is made of literature as an art according to the principles of criticism, the controlling aim being to deepen the appreciation of poetry in its various forms and functions, in its ethical import and its philosophy.

Besides the work in English, two years of foreign language work are required in all college courses leading to a degree, except mechanical, electrical, and civil engineering, where the requirement is one year. Preference is given to German, but French is also offered.

The library is a most important factor in the work of the department, as English literature is represented in it by some twelve hundred carefully selected volumes, and the French and German literatures by about six hundred.

ENGLISH.

I. Rhetoric and Composition.—Studies in the method of modern prose with analysis of models of literary and logical form. Daily practice in the various forms of composition, special stress being laid on exposition. *Three recitation credits per week, throughout the year. Required of Freshmen in all courses.*

II. Newspaper Work.—News writing, reporting, news values, proof-reading, editorials. *One recitation credit per week, first term. Required of Sophomores in all courses.*

III. Argumentation.—Theory and Practice (in connection with Oral Exp. II); brief-drawing. *One recitation credit per week, second term. Required of Sophomores in all courses.*

IV. Principles of Criticism.—Study of literary method with especial reference to lyric and epic poetry. Interpretation of classic examples in each form. *Four recitation credits per week, first term. Required of Juniors in all courses.*

V. The Drama.—The great character types of dramatic literature with Shakespearean tragedy as the central study. *Four recitation credits per week, last twelve weeks of the second term. Required of Seniors in all courses.*

VI. Composition.—Oral and written, in kind and amount according to individual need. *Not less than two recitation credits per week, first term; second term. Elective for Freshmen.*

A. Elementary English.—Composition, oral expression, assigned reading. *Five recitation credits per week, throughout the year. Required of Short-Course Students in Agriculture, Domestic Science, and Engineering, first year.*

B. Elementary English.—A continuation of A, including, also, some instruction in civics and economics. *Three recitation credits per week, throughout the year. Required of Short-Course students in Domestic Science and Engineering, second year.*

ORAL EXPRESSION.

I. Interpretive Reading.—The fundamentals of expression, pronunciation, articulation, the training of the voice. The intellectual element in expression: emphasis, inflection, phrasing—the reading of prose. The emotional element in expression: quality, force, pitch, rhythm—the reading of poetry. The elements of dramatic expression. *One recitation credit per week, first term. Required of Sophomores in all courses.*

II. Debating.—The theory of the subject with oral practice; taken with Argumentation (English III). *One recitation credit per week, second term. Required of Sophomores in all courses.*

III. Debating.—Instruction and practice in the art of debate. Two public debates will be given by the students. *One recitation credit per week, throughout the year. Required of Juniors in all courses.*

IV. Oratory and Extempore Speaking.—Theory and practice. This work is given in connection with the subjects of Government, Political Economy, and English V. *One recitation credit per week, throughout the year. Required of Seniors in all courses.*

GERMAN.

I. Elementary German.—Grammar, dictation, conversation, reading of easy prose and poetry. *Three recitation credits per week, throughout the year. Required of Freshmen who do not offer German for entrance.*

II. Reading of texts portraying German life and institutions, composition, conversation. *Three recitation credits per week, throughout the year. Required of Sophomores in Agriculture, Applied Science, Home Economics, and Chemical Engineering.*

III. Scientific German.—*Three recitation credits per week, throughout the year. Elective for students who have taken* I *and* II *or their equivalents.*

IV. Scientific German.—*From three to five recitation credits per week, first term; Freshman year. Elective for Freshmen.*

FRENCH.

I. Elementary French.—Grammar, dictation, conversation, reading of easy prose and poetry. *Three recitation credits per week, throughout the year.*

II. Reading of intermediate texts, composition, conversation, selections from Hugo's Misérables or similar work. *Three recitation credits per week, throughout the year.*

III. Scientific and Classical French.—*Three recitation credits per week throughout the year. Elective for students who have taken* I *and* II *or their equivalents.*

IV. Scientific French.—*From three to five recitation credits, first term; Freshman year. Elective for Freshmen.*

SPANISH, ITALIAN.

I. Elementary Spanish or Italian.—*Three recitation credits per week, first or second term. Elective.*

Mathematics.

PROFESSOR TYLER, MR. BILLS.

The work in this department covers two distinct phases of mathematical training: the college and the short-course instruction. Throughout the regular college work, emphasis is laid both on the theory and direct application of the different subjects to the problems of engineering and agriculture. An attempt is made to present a working knowledge of arithmetic, algebra, and bookkeeping, and their practical use to short-course students.

Subjects.

I. Higher Algebra.—*Five recitation credits per week, nine weeks, first term. Required of all Freshmen.* Professor Tyler, Mr. Bills.

II. Trigonometry.—*Five recitation credits per week, nine weeks, first term. Required of all Freshmen.* Professor Tyler, Mr. Bills.

VII. Trigonometry (completed).—*Five recitation credits per week, first four weeks, second term. Required of Freshmen in Engineering and Applied Science.* Professor Tyler, Mr. Bills.

VIII. Analytics.—*Five recitation credits per week, last fourteen weeks, second term. Required of Freshmen in Engineering and Applied Science.* Professor Tyler, Mr. Bills.

IX. Analytics (completed).—*Five recitation credits per week, first four weeks, first term. Required of Sophomores in Engineering.* Professor Tyler.

X. Calculus.—*Five recitation credits per week, last fourteen weeks, first term. Required of Sophomores in Engineering.* Professor Tyler.

XI. Calculus (completed).—*Five recitation credits per week, second term. Required of Sophomores in Engineering.* Professor Tyler.

XII. University Algebra.—*Three recitation credits per week, first term. Elective for Freshmen.*

XIII. Practical Computations.—*Three recitation credits per week, second term. Elective for Freshmen.*

F. Arithmetic.—*Five recitation credits per week, throughout the year. Required of Short-Course students in Engineering and Domestic Science, first year.* Mr. Bills.

G. Bookkeeping.—*Four recitation credits per week, first term. Required of all Short Course students, second year.* Mr. Bills.

H. Algebra.—*Five recitation credits per week, second term. Required of students in Short-Course Engineering, second year, and in Domestic Science, second term, second year.* Mr. Bills.

Military Science and Tactics.

CAPTAIN DOVE.

All male students are required to attend exercises in military instruction during their attendance at the college, unless excused by reason of physical disability. Credit is given for this work on the same basis and under the same regulations as in other departments.

The war department furnishes for use in this instruction United States magazine rifles (Krag-Jorgensen pattern), swords, equipments, and ammunition for target practice. The cadets are organized this year into a battalion of three companies of infantry and band. Theoretical instruction is given by means of lectures and recitations, and practical instruction by means of infantry drills in the school of the squad, the company, and the battalion. The aim of these military exercises is to improve the physique, to inculcate the habit of prompt and cheerful obedience and courtesy to rightfully constituted authority, to exercise an elevating influence on the conduct of the corps of cadets, and as far as possible to qualify students who take the military course to be company officers of infantry, volunteers or militia, if necessary.

Competitive drills may be held annually between the companies of the battalion. The name of the best drilled company and its commander is placed on the battalion colors.

The names of such students of the graduating class each year as have shown special aptitude for military service will be reported to the Adjutant General of the Army and also to the Adjutant General of the State.

All students in the military department are required to supply themselves, through the commandant, with the prescribed uniform, which consists of dark blue blouse, cap and trousers, white collar and white gloves, military pattern, and black shoes; the insignia of rank of officers and non-commissioned officers to conform to that of the infantry, United States Army.

Uniforms must be worn at all ceremonies, drills, and other forms of practical instruction.

Subjects.

I. Practical Instruction.—(a) Infantry Drill Regulations, including the school of the squad, of the company, and of the battalion. Ceremonies and Inspections. (b) Small Arms Firing Manual. Sighting drills, position and aiming drills, gallery practice, estimating distance. (c) Field Service Regulations. Orders, advance guards, flank guards, rear guards, outposts, patrolling, and marches and camping whenever possible. (d) Manual of Guard Duty. *Two exercises of one hour each per week, counting as one credit, throughout the year. Required of all the command.*

II. Theoretical Instruction.—United States Infantry Drill Regulations. Small Arms Firing Regulations. Manual of Guard Duty. Field Service Regulations of United States Army. *One recitation credit per week, throughout the year. Required of all Freshmen.*

Physics.

PROFESSOR DICKINSON, MR. CLOKE.

The instruction given in this department is intended to acquaint the students with the fundamental concepts of physical science. The work will be as broad as is consistent with the time and needs of the students.

This department is equipped with vernier and micrometer calipers, micrometer microscopes, comparator, dividing engine, cathetometer, simple and compound pendulums, and balances for exact measurements in mechanics. It has also apparatus for determining the coefficient of linear expansion and for the determination of specific and latent heats, a weight thermometer apparatus for determining the density of liquids and solids, a thermo-couple for direct determination of temperatures up to 1650° C., Melloni's apparatus for investigation in radiant heat, and apparatus for determining the mechanical equivalent of heat.

In light, the laboratory is equipped to carry on the usual college work. The department has apparatus for finding the focal length of lenses and mirrors; a Pulfrich refractometer; spectrometers; an interferometer (Institute of Technology patterns); photometer; total reflectometer; and many smaller instruments, including simple and compound microscopes. The greater part of the above listed apparatus is new, having been recently purchased of foreign makers.

The laboratory for exact measurements in electricity and magnetism is also fitted up with new apparatus recently purchased of the

Leeds and Northup Company of Philadelphia, and among other instruments are several types of D'Arsonval galvanometers; Wheatstone bridges, slide wire and post-office patterns; standard cells (Clark and Weston types); standards of resistance, capacity, and self-induction; magnetometers; voltameters; and many smaller instruments sufficient to carry on the usual college work in electrical measurements. For advanced electrical measurements the department is provided with Weston and Thompson ammeters, and voltmeters with both low and high ranges, wattmeters, a Leeds and Northup alternating and direct current comparator.

In the subject of sound the department is provided with apparatus for the determination of wave-length, pitch, frequency, etc.

Subjects.

I. Descriptive Physics.—A course designed for students in Agriculture. Considerable time is given to the discussion of the principles of mechanics as applied to farm machinery. The course furnishes an excellent foundation for further work in agricultural physics. *Five recitation credits per week, second term. Required of Sophomores in Agriculture and Home Economics.* Mr. Cloke.

II. General Physics.—A mathematical treatment of the subject. *Four recitation credits per week, throughout the year. Required of all Sophomores in Engineering and Teachers' Course in Applied Science.* Professor Dickinson.

III. Laboratory Physics.—A course in physical measurements intended to teach students methods and to form a basis for future engineering work. The calculation of results will be given special attention. *One and one-half laboratory credits per week, throughout the year. Required of Sophomores in Engineering and Teachers' Course in Applied Science.* Mr. Cloke.

IV. Electrical Measurements.—A course of lectures treating of the theory and manipulation of electrical measuring instruments. *One recitation credit per week, first term. Required of Juniors in Electrical Engineering.* Professor Dickinson.

V. Electrical Measurements Laboratory.—Direct-current measurements, resistance, potential current, magnetic properties of iron and steel, calibration of direct-current instruments. *One and one-half laboratory credits per week, first term. Required of Juniors in Electrical Engineering.* Professor Dickinson.

VI. Principles of Illumination.—A study of different sources of light, the measurements of candle power, and the principles of illuminating engineering. *One recitation credit and one and one-half laboratory credits per week, first term. Required of Juniors in Electrical Engineering.* Professor Dickinson.

A. Elementary Physics.—A course designed to give the student a grasp of the more important physical principles underlying Engineering work. *Three recitation credits per week, throughout the year. Required of Short-Course students in Engineering, second year.* Mr. Cloke.

Physical Training.

MISS HARRALL.

All women students are required to attend the gymnasium exercises. These are designed to improve the general health of the young women and to train them in agility, poise and general gracefulness, and to develop alertness and a ready response to any order or request. The exercises are confined to the lighter work of a gymnasium because of a lack of other equipment.

I. Marching; free arm exercises; wand and dumb-bell exercises; Indian club swinging; aesthetic dancing. *One laboratory credit per week, throughout the year. Required of all women students.*

Woodwork.

MR. T. C. RODMAN.

H. Farm Buildings.—A practical course in the planning of farm structures, estimating quantities of material required, and costs. *One shop credit per week, second term. Required of Short-Course students in Agriculture, second year.*

I. Shopwork.—Woodworking at the bench and lathe. *One and one-half shop credits per week, first term. Required of Short-Course students in Agriculture, first year.*

Zoölogy.

PROFESSOR BARLOW.

The work in this department is designed to meet the needs of two classes of students, those who are interested in the economic aspect of animal life and those who purpose to become teachers. To meet the needs of the first class, subjects are given which are planned to call attention to the economic importance of the different orders. Much time is allotted to entomology, and in this subject special attention is given to injurious species. For those who are to be teachers, a thorough training is given in the morphology and classification of animals as a preparation for the more special subjects that follow. In these, attention is directed to the habits and relations of animals, which are studied both in the field and laboratory.

The laboratory is equipped with a series of charts, valuable models, and many mounted skeletons. The Rhode Island birds are represented by mounted specimens of practically every species; fishes; reptiles, and batrachians, by alcoholic preparations. The collection of insects, begun recently, now fills about one hundred cases, and is being steadily increased. Each student is given the use of compound and dissecting microscopes. The necessary instruments for laboratory work can be procured at small cost at the college store.

Subjects.

I. General Zoölogy.—Discussion of the more important laws of biology and the dissection of representatives of the more important Phyla. *Two laboratory and two recitation credits per week, first term. Required of Sophomores in Agriculture, Home Economics, and Applied Science.*

II. General Zoölogy.—Special attention is given to the relation of animals to their surroundings. *Two laboratory credits and one recitation credit per week, second term. Option for Seniors in Applied Science.*

III. Physiology.—The physiology of the higher mammals. *One laboratory and three recitation credits per week, second term. Required of Sophomores in Agriculture, Home Economics, and Applied Science.*

IV. Economic Entomology.—*One laboratory and three recitation credits per week, second term. Required of Juniors in Agriculture. Option in Applied Science.*

V. General Entomology.—*Two laboratory credits and one recitation credit per week, first term; two recitation and three laboratory credits per week, second term. Option for Seniors in Applied Science.*

VI. Systematic Entomology.—*Three or five laboratory credits per week, throughout the year. Elective for those who are taking or have taken Zoölogy* V.

VII. Vertebrate Anatomy.—*Three laboratory credits per week, first term. Required of Juniors in Home Economics. Option for Juniors in Applied Science.*

VIII. Histology and Embryology.—*Three laboratory and two recitation credits per week, second term. Required of Juniors in Home Economics. Option for Juniors in Applied Science.*

IX. Methods in Nature Study.—Bird life, habits of insects, aquaria. *One and one-half laboratory or field credits per week, second term. Elective.*

A. Elementary Zoölogy.—Deals with forms of economic importance. *Three recitation and one and one-half laboratory credits per week, first term. Required of Short-Course students in Agriculture and Domestic Science, first year.*

Organizations.

Athletic Association.

William Henry Webb	President.
Cedric Hamlin Collins	Vice-President.
John Barlow	Treasurer.

Agricultural Club.

Walter Colwell Irons	President.
Herbert Reiner	Vice-President.
William Edward Anderson	Secretary.
Clarence Elmer Brett	Treasurer.

Debating Society.

Carle Muzzy Bigelow	President.
Frank Harold Briden	Vice-President.
Harold William Browning	Secretary.
Clarence Elmer Brett	Treasurer.

Engineering Society.

Charles Varnum Johnson	President.
F. H. Briden	Vice-President.
Benjamin Cohen	Secretary-Treasurer.

Student Council.

Arthur J. Patterson	President.
William F. Redding	Vice-President.
James Russell Esty	Secretary-Treasurer.

Young Men's Christian Association.

Philip H. Clark	President.
Walter C. Irons	Vice-President.
Arthur J. Patterson	Secretary.
Dennis F. Barry	Treasurer.

Young Women's Christian Union.

Esther Loomis Congdon	President.
Dorothy Dearborn Elkins	Vice-President.
Electra H. Cobb	Secretary.
Elizabeth Croucher	Treasurer.

Dramatic Club.

Earl A. Tyler	President.
Marion W. Borden	Vice-President.
Adelaide Watson	Secretary.
Waldo Reiner	Treasurer.

Lecture Association.

Philip H. Clark	President.
Allae C. Slater	Vice-President.
Frank K. Sechrist	Treasurer.
Arthur J. Patterson	Assistant Treasurer.

BATTALION ORGANIZATION, JANUARY 10, 1912.

Wilbur E. Dove, Captain, United States Army.

CADET OFFICERS AND NON-COMMISSIONED OFFICERS.

Field and Staff.

Major	David E. Warner, Jr.
First Lieutenant and Adjutant	John L. Sullivan.
Second Lieutenant, Quartermaster and Commissary	Charles V. Johnson.

Non-Commissioned Staff.

Sergeant-Major	Wilfred C. Matthews.
Quartermaster Sergeant	Harold W. Hawxhurst.
Color Sergeant	Raymond C. Hopkins.
Color Sergeant	George W. Sherman, Jr.

Company A.

Captain	Henry N. Barlow.
First Lieutenant	Frank H. Briden.
Second Lieutenant	Edgar G. Davis.
First Sergeant	William H. Webb.
Co. Quartermaster Sergeant	Philip H. Clark.
Sergeant	Harry L. Mounce.
Sergeant	Waldo Reiner.
Corporal	Leroy B. Newton.
Corporal	Henry E. Davis.
Corporal	Frank H. Baxter.
Corporal	Harold W. Browning.

Company B.

Captain	Carle M. Bigelow
First Lieutenant	Arthur J. Patterson.
Second Lieutenant	Fred A. Richmond.
First Sergeant	Earl A. Tyler.
Co. Quartermaster Sergeant	James H. Young.
Sergeant	Ralph I. Alexander.
Sergeant	Frank Steck.
Corporal	George H. Baldwin.

Corporal	John C. Glynn.
Corporal	Herbert Reiner.
Corporal	Walter R. Turner.

Company C.

Captain	Walter Doll.
First Lieutenant	William H. Tully.
Second Lieutenant	Charles H. Larkin.
First Sergeant	Irving C. Mitchell.
Co. Quartermaster Sergeant	Edwin R. Noyes.
Sergeant	James R. Esty.
Sergeant	William F. Redding.
Corporal	William J. Corr.
Corporal	Myron W. Finch.
Corporal	Benjamin Cohen.
Corporal	George E. Slocum.

Band.

Chief Musician	Crawford P. Hart.
Drum Major	Bernard A. Ahrens.
Principal Musician	Oliver H. Stedman.
Sergeant	Walter C. Irons.
Corporal	Arthur L. Reynolds.
Corporal	Reuben C. Bates.
Corporal	Herman B. Brown.

Alumni Association.

Calvin Lester Coggins, 1907 .... President.
Hoboken, N. J.

Clovis William Mitchell, 1908 .... Vice-President.
New London, Conn.

John Raleigh Eldred, 1900 .... Secretary-Treasurer.
Kingston, R. I.

Executive Committee.

C. L. Coggins, 1907
C. W. Mitchell, 1908
John R. Eldred, 1900
Leroy L. Mounce, 1910
C. T. Arnold, 1894

Prizes and Honors.

THE KINGSTON PRIZES

The sum of sixty dollars offered by a friend of the college to encourage literary work among the students, was divided in 1911 into three portions, providing a first prize of twenty-five dollars, a second of twenty, and a third of fifteen dollars, for the best essays submitted in a contest held in June, 1911. The awards were as follows :

FIRST PRIZE:

Bacteriology and the Water Supply of Cities, Dorothy Walcott Caldwell.

SECOND PRIZE:

Electricity on Ocean Steamships, Clarence Bland Edwards.

THIRD PRIZE:

Christianity and Hinduism, Ethel Pierce Henderson.

HONORS.

Honors awarded Commencement Day, June 22, 1911:

SENIOR.

- Patrick Joseph Healy,

SOPHOMORE.

- Marguerite White Elkins,
- Ralph Irwin Alexander,
- Dorothy Dearborn Elkins,
- James Hannibal Young,
- Benjamin Cohen,
- Arthur Leslie Reynolds.

JUNIOR.

- Henry Newell Barlow,
- Allae Cordelia Slater,
- Walter Doll,
- Arthur John Patterson,
- George William Sherman, Jr.,
- Fred Allen Richmond,
- Carle Muzzy Bigelow.

FRESHMEN.

- Olive Nicholson,
- Harold William Browning,
- Helen Wheeler Ford,
- Lorenzo Foster Kinney, Jr.,
- Frank Howard Baxter,
- James Hilton Aldred,
- Leroy Allen Whittaker,
- James Russell Esty.

HONORABLE MENTION

Dorothy Jennette Bullock.

Degrees Conferred in 1911.

Bachelor of Science.

Andrews, Carmen Nichols,
Angilly, Charles Enoch, Jr.,
Easterbrooks, Harold Arnold,
Easterbrooks, Louis Church,
Gilchrest, Clyde Ronald,
Harris, Burton Kenneth,
Healy, Patrick Joseph,
Kent, Robert Willard,
Minor, Arthur Jacob,
Neal, William Thomas,
Robinson, Benjamin Rowland,
Ruprecht, Rudolf William,
Safford, Howard Albert,
Tucker, Harriet Taber,
Wade, Ceylon Raymond.

Master of Science.

Hammett, Frederick Simons (A. B. Tufts College, 1908.)

Certificates Awarded in 1911.

Two-Year Course in Agriculture.

Tefft, Lucy Catherine.

Students.

Graduates.

Peaslee, George Everett (Pratt. Inst.)	Kingston.
Seabright, James Elbert (Univ. of Va.)	Kingston.
Thewlis, Malford W. (Bowdoin Coll.)	Wakefield.

Seniors.

Barlow, Henry Newell, Elec. Eng	Kingston.
Bigelow, Carle Muzzy, Appl. Sci	Woonsocket.
Caldwell, Dorothy Walcott, Civ. Eng	Woonsocket.
Clarke, Philip Harrison, Elec. Eng	Centreville.
Cobb, Electra Henrietta, Home Econ	Howardsville, Va.
Doll, Walter, Mech. Eng	Berkeley.
Henderson, Ethel Pierce, Appl. Sci	Westerly.
Kenyon, Annie Eliza, Appl. Sci	Usquepaug.
Larkin, Charles Herbert, Civ. Eng	Ashaway.
Nutting, Bertha May, Home Econ	Brickerville, Pa.
Patterson, Arthur John, Elec. Eng	Kingston.
Richmond, Fred Allen, Elec. Eng	Hope Valley.
Sherman, George William, Jr., Elec. Eng	Lafayette.
Slater, Allae Cordelia, Home Econ	Slocum.
Warner, David Edmond, Jr., Agr	Bridgeton.
Webster, Samuel C., Jr., Agri	Westerly.
Whalen, William Joseph, Appl. Sci	Providence.

Juniors.

Ahrens, Bernard Alexander, Agr	Kingston.
Alexander, Ralph Irwin, Mech. Eng	Kingston.
Aspinwall, Frederick Otto, Chem. Eng	Pawtucket.
Bates, Reuben Charles, Civ. Eng	Providence.
Borden, Marion Wilhelmina, Home Econ	Providence.
Cohen, Benjamin, Elec. Eng	Kingston.
Congdon, Esther Loomis, Home Econ	Wakefield.
Corr, William John, Appl. Sci	East Greenwich.
Davis, Edgar George, Civ. Eng	Providence.
Elkins, Dorothy Dearborn, Home Econ	Amesbury, Mass.
Elkins, Marguerite White, Home Econ	Amesbury, Mass.
Ford, Alice Edith, Appl. Sci	North Easton, Mass.

Hart, Crawford Peckham, Agr	Melville Station.
Hawxhurst, Harold William, Civ. Eng	Providence.
Hopkins, Raymond Canfield, Elec. Eng	Shannock.
Irons, Walter Colwell, Agr	North Scituate.
Mitchell, Irving Calvary, Appl. Sci	Oakland.
Noyes, Edwin Roy, Elec. Eng	East Greenwich.
Redding, William Francis, Elec. Eng	Meshanticut.
Reiner, Waldo, Civ. Eng	Brooklyn, N. Y.
Reynolds, Arthur Leslie, Elec. Eng	Providence.
Slocum, George Edwin, Elec. Eng	Providence.
Stedman, Oliver Hazard, Elec. Eng	Peace Dale.
Sullivan, John Leo, Elec. Eng	Lonsdale.
Turner, Walter Raymond, Appl. Sci	Johnston.
Wood, Susie Stanton, Home Econ	Slocum.
Young, James Hannibal, Appl. Sci	Kingston.

B Wilcox Kyle (M) Brett.
Steele
M Briden

Sophomores.

Aldred, James Hilton, Mech. Eng	Ashton.
Anderson, Edwin, Mech. Eng	Newport.
Anderson, William Edward, Agr	Westerly.
Arnold, Louis Whitman, Jr., Appl. Sci	Westerly.
Baxter, Frank Howard, Mech. Eng	Mansfield, Mass.
Benson, Robert John, Elec. Eng	Brockton, Mass.
Black, Theodore Edgar, Jr., Agr	Westerly.
Boulester, Edward James, Appl. Sci	Providence.
Brechin, John, Jr., Mech. Eng	Bristol.
Brown, Herman Byron, Appl. Sci	Hope Valley.
Browning, Harold William, Appl. Sci	Matunuc.
Burdick, Powell, Mech. Eng	Wickford.
Caldwell, Seth Atherton, Mech. Eng	Woonsocket.
Carberry, Thomas Francis, Chem. Eng	Providence.
Clarke, Charles Browning, Mech. Eng	Wakefield.
Collins, Cedric Hamlin, Civ. Eng	Berkeley.
Connor, Thomas Rowley, Civ. Eng	Wakefield.
Davis, Henry Ellis, Agr	Edgewood.
Esty, James Russell, Elec. Eng	Slatersville.
Finch, Myron Whitmarsh, Agr	Providence.
Ford, Helen Wheeler, Home Econ	North Easton, Mass.
Glynn, John Charles, Civ. Eng	New London, Conn.
Hawkins, Myron Angell, Agr	Providence.
Huntley, Herbert George, Appl. Sci	New London, Conn.
Jones, Carlton Walter, Civ. Eng	Providence.
Kinney, Lorenzo Foster, Jr., Appl. Sci	Kingston.
MacLellan, Alexander Davies, Civ. Eng	Newport.
Matthews, Wilfred Chipman, Elec. Eng	Providence.
McGolrick, James Edward, Agr	New York, N Y.

Nathanson, Joseph George, Elec. Eng	Central Falls.
Newton, Leroy Burgess, Civ. Eng	West Barrington.
Nicholson, Olive, Home Econ	Pawtucket.
Nicholson, Sarah Alice, Home Econ	Pawtucket.
Oslin, William Henry, Appl. Sci	Providence.
Pollard, Raymond George, Mech. Eng	Valley Falls.
Reiner, Frieda, Home Econ	Brooklyn, N. Y.
Reiner, Herbert, Agr	Brooklyn, N. Y.
Rossi, Louis, Civ. Eng	Westerly.
Safford, Edith Marie, Home Econ	Lancaster, Mass.
Shea, Joseph Francis, Elec. Eng	Valley Falls.
Sherwin, Leroy Merton, Mech. Eng	Kingston.
Soong, Aloy, Chem. Eng	Canton, China.
Thayer, Harold Francis, Appl. Sci	Woonsocket.
Turner, Harvey Robert, Civ. Eng	Providence.
Webster, Earl Clifton, Civ. Eng	Providence.
Young, Edwin Olney, Elec. Eng	East Greenwich.

Freshmen.

Allenson, Chester Williams, Eng	Central Falls.
Allenson, Clifford Arnold, Eng	Central Falls.
Barney, Raymond Livingston, Appl. Sci	Providence.
Bliven, Charles L., Agr	Bradford.
Borden, Norman Harrison, Eng	Providence.
Broadfoot, Henry Harrington, Eng	Westerly.
Brown, Oscar Anthony, Appl. Sci	West Kingston.
Brownell, Kenneth Allen, Chem. Eng	Adamsville.
Carley, Howard Raymond, Mech. Eng	North Attleboro, Mass.
Cloke, Philip Royal, Eng	Kingston.
Coleman, Carl Lafayette, Agr	Orange, Mass.
Collamore, Vernon Wallace, Eng	Brockton, Mass.
Dickinson, William Henry, Agr	Hatfield, Mass.
Dodd, Dexter Tiffany, Agr	Chestnut Hill, Mass.
Donovan, Lillian Marguerite, Appl. Sci	Westerly.
Flaherty, Eugene Joseph, Eng	North Attleboro, Mass.
Foley, Francis James, Eng	Westerly.
Gates, Curtis Wolcott, Eng	New London, Conn.
Gray, Janet Saxon, Home Econ	Allenton.
Hall, Carlisle, Agr	Providence.
Hanlin, William Frank, Eng	Arlington.
Harding, Ada LaPlace, Home Econ	Lyme, Conn.
Hathaway, Clifford Sherman, Eng	Peace Dale.
Hudson, Royal Carlton, Appl. Sci	Phenix.
Hunter, Albert Clayton, Appl. Sci	East Providence.
Jackowitz, John Louis, Appl. Sci	East Providence.
Jackson, Harold Mitchell, Agr	Brockton, Mass.
Keith, Lawrence Fuller, Agr	Campello, Mass.

Kelly, Henry Clinton, Eng.......................................Nayatt.
Kenney, Francis Royal, Agr...........................Fall River, Mass.
Kivlin, Alfred Patrick, Eng..........................North Attleboro, Mass.
Lennox, Frank Joseph, Eng.................................Woonsocket.
Lewis, William Emanuel, Agr..............................Woonsocket.
Macon, Dorothy Elizabeth, Home Econ.........................Kingston.
McIntosh, Albert Edward, Eng..............................Providence.
Meade, John Edward, Eng...................................Nasonville.
Meyer, Frank Harry, Eng..............................North Attleboro, Mass.
Miller, Joseph, Appl. Aci............................Narragansett Pier.
Miller, Wesley Clifton, Eng...............................Providence.
Mowry, Harold Conrad, Eng..............................North Scituate.
Mullen, Charles Edward, Appl. Sci..........................Peace Dale.
Mullins, Marcus George, Appl. Sci......................Hatfield, Mass.
Nichols, Joseph Elton, Eng.................................Woonsocket.
Nordquist, Harry Oscar Valdimar, Eng.......................Providence.
Paine, Frank Eugene, Eng......................................Warwick.
Parker, Ralph Langley, Agr.............................Brockton, Mass.
Potter, Ivy Eldredge, Appl. Sci..............................Lonsdale.
Rossi, Mary Christina, Appl. Sci...........................Providence.
Rugg, Chester Warren, Eng................................Brocton, N. Y.
Senior, Walter Curtis, Agr..............................Ipswich, Mass.
Spofford, William Preston, Eng.............................Providence.
Tabor, Frank Edward, Eng..................................Slatersville.
Tobey, Arthur William, Agr.............................Brockton, Mass.
Trescott, Waldo, Eng..Pawtucket.
Wales, Wilfred Nichols, Eng............................Groveland, Mass.
Watson, Adelaide Gilbert, Home Econ........................Peace Dale.
Wilcox, Harold Clayton, Agr........................South Milford, Mass.
Woodward, Alvah Gray, Eng.....................................Wakefield.

Irregular.

Baldwin, George Holland, Agr...............................Valley Falls.
Barry, Dennis Francis, Appl. Sci.........................Warren, Mass.
Brett, Clarence Elmer, Agr......................................Kingston.
Briden, Frank Harold, Mech, Eng..........................Central Falls.
Champlin, Charles Edwin, Jr., Elec. Eng........................Westerly.
Clarke, Henry Marsh, Civ. Eng..................................Westerly.
Croucher, Elizabeth, Home Econ..................................Newport.
Dodge, William Earl, Mech. Eng...............................Providence.
Goddard, Archie Coggeshall, Agr.................................Newport.
Johnson, Charles Varnum, Civ. Eng..............................Allenton.
Karmann, Hermann Harry, Civ. Eng.............................Providence.
Kyle, Thomas, Agr...Central Falls.
Lewis, George Mitchell..Kingston.
Loftus, John...West Kingston.

Mason, Howard, Mech. Eng	Pawtucket.
May, Cyril Mercer, Mech. Eng	East Greenwich.
Mounce, Harry Lyden, Agr	North Marshfield, Mass.
Northup, John T., Poultry	Apponaug.
O'Neil, John Brooks	New London, Conn.
Price, Milton Harris, Agr	Providence.
Quintero, Carlos, Agr	Panama, Panama.
Robinson, Eben George, Agr	Edgewood.
Steck, Frank, Chem. Eng	Kingston.
Tucker, Myron Griffin, Mech. Eng	Wakefield.
Tully, William Henry, Appl. Sci	Peace Dale.
Tyler, Earl Albert, Chem. Eng	Centreville.
Webb, William Henry, Elec. Eng	Howard.
Whittaker, LeRoy Allen, Elec. Eng	Central Falls.
Wilcox, Erroll Kenyon, Civ. Eng	Norwich Town, Conn.

Two-Year.

Brindle, Robert, Jr., Mech. Eng	Woonsocket.
Carroll, Frank Aurthur, Agr	Woonsocket.
Chappell, Henry Browning, Agr	Saunderstown.
Goddard, Franklin Perry, Mech. Arts	Newport.
Goodchild, Beulah Florence, Dom. Sci	Providence.
Greene, James Taylor, Agr	Wickford.
Halliday, Robert Crossley, Agr	Pawtucket.
Henderson, Samuel James, Mech. Eng	Hingham Center, Mass.
Hubbard, Allene Frances, Dom. Sci	Woonsocket.
Hull, Benjamin, Agr	West Kingston.
Hurlbut, Harold, Agr	Plantsville, Conn.
Jones, Harold Corbin, Agr	Providence.
Knox, Roy Francis, Mech. Arts	Warwick.
Martin, Raul E., Agr	Washington, D. C.
Norgaard, Jakobi, Dom. Sci	Longmeadow.
Peters, George Albert, Agr	Kingston.
Swift, Howard Erastus, Mech. Arts	Lee, Mass.
Tefft, Helen Macy, Dom. Sci	Jamestown.
Waller, Mary Robinson, Dom. Sci	Washington, D. C.
Webb, George Henry, Agr	Pawtucket.
Weir, Millie Elizabeth, Dom. Sci	Providence.
Weston, Richard Ward, Agr	West Bridgewater, Mass.

Poultry-Keeping.

Allen, Harrison P	Grand Isle, Vermont.
Bodulich, William	West Philadelphia, Pa.
Britten, Emily Adelaide	Woodford, England.
Cory, Charles W., Jr	Melville.
Dodge, Hiram Alfred	Harrisville.

Fisher, John Leroy	Providence.
Fordham, Austin Lyle	Saxton's River, Vt.
Gillins, James Edward	Brooklyn, New York.
Greene, James Taylor	Wickford.
Green, Esther Follansbee	Pascoag.
Green, M. Louise	New Haven, Conn.
Harrington, Lewis Lowe	Lunenburg, Mass.
Hough, Earl M	East Greenwich.
Hurlbut, Harold	Plantsville, Conn.
Juvenal, A. B	New Rochelle, New York.
Jenks, Lena M	Woonsocket.
Kenyon, George C	Hopkinton.
Migneault, Charles F., Jr	Woonsocket.
Morse, Orville	Shelton, Conn.
Parkhurst, Irving B	Everett, Mass.
Pyper, Myrtle Adele	Conimicut.
Reichl, Robert	Philadelphia, Pa.
Silva, Frank L	Waynesboro, Virginia.
Smith, Rufus S	Hackensack, N. J.
Staley, Edwin G	New York, N. Y.
Thomas, Ernest Kinsey	Kingston.
Tillinghast, Esther C	Providence.
White, Robert Spencer	Providence.

Summer School.

Beith, Emily P	West Philadelphia, Penn.
Beirne, Alice	Providence.
Brown, Amey S	South Scituate.
Clark, Gertrude M	Providence.
Cushman, Louisa	Pawtucket.
Davis, Susie E	Assonet, Mass.
Greene, Bertha L	Woonsocket.
Hendrick, Maude H	Woonsocket.
Hurley, Katherine M	Providence.
Hurley, Lila	Providence.
McGunnagle, John A	Central Falls.
McGovern, F. J	Providence.
Miller, Marie	Providence.
Nevin, David D	Providence.
Pettis, Sybil	Thompson, Conn.
Peckham, Elizabeth A	Newport.
Pyper, Myrtle Adele	Conimicut.
Sweet, Sarah L	Providence.
Tucker, Ellen Capron	Kingston.
Tucker, Ethel Aldrich	Kingston.
Walton, Thomas A	Hope

Warner, Florence A	Central Falls.
Whiting, Elmira E	Pawtucket.
Wilber, Sarah M	West Kingston.

Graduate students	3
Seniors	17
Juniors	27
Sophomores	46
Freshmen	58
Irregulars	29
Two-Year Courses	22
Poultry Students	28
Summer School	24
Total number of students (none counted twice)	51

Graduates.*

1894.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
ADAMS, GEORGE EDWARD Kingston.	Agr.	Chief of Dept. of Agriculture and Professor of Agronomy, R. I. S. C.
AMMONDS, GEORGE CLARENCE 5 Boylston Place, Boston, Mass.	Mech.	Railroad Postal Clerk, on N. Y., N. H. & H. R. R.
ARNOLD, CHAPIN TRAFFORD 52 Wood St., Providence.	Agr.	Electrical Contractor, Office 26 Custom House St., Providence.
BURLINGAME, GEO. WASHINGTON R. F. D. No. 2, Box 56, North Scituate.	Agr.	Farmer and Teacher.
CLARK, HELEN MAY (MRS. WM. F. B. LEAVITT), B. L., Smith College, 1899. Essex Fells, New Jersey.		At home.
KNOWLES, JOHN FRANKLIN Kingston.	Mech.	With contractor John Bristow.
†MADISON, WARREN BROWN	Agr.	
MATHEWSON, ERNEST HOXSIE Ph. B., Brown University, 1896. Reidsville, North Carolina.	Mech.	Crop Technologist in Tobacco, U. S. Department of Agriculture.
PECKHAM, REUBEN WALLACE Melville Station, Newport.	Agr.	Market Gardener.
RATHBUN, WILLIAM SHERMAN Northampton, Mass.	Agr.	With Printing Department, Eureka Ruling and Binding Co., Holyoke, Mass.
RODMAN, GEORGE ALBERT New Haven, Conn.	Mech.	Inspector, Bridges and Buildings, Room 24, General Office Bldg., N. Y., N. H. & H. R. R. Co.
SARGENT, CHARLES LAWRENCE Ph. D., University of Pennsylvania, 1900. 9 Thomas St., Newark, New Jersey.	Agr.	Chemist, Murphy Varnish Co.
SLOCUM, SAMUEL WATSON 130 West Broad St., Westerly.	Agr.	Carpenter.
SPEARS, JOHN BARDEN Foster Centre.	Agr.	Rural Letter Carrier.

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*It is earnestly desired that graduates inform the college office of any permanent change of address.

† Deceased.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Sweet, Stephen Adelbert Slocums.	Agr.	Farmer.
Tucker, George Mason Ph. D., Göttingen, 1899. North Scituate.	Agr.	Farmer.
Wilbur, Robert Arthur East Greenwich.	Mech.	Express Agent.

1895.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Albro, Lester Franklin 34 Plaza St., Brooklyn, N. Y.	Agr.	With Packard Motor Car Co.
Burdick, Howland Kingston.	Agr.	Instructor in Dairying, R. I. S. C.
Clarke, Charles Sherman Jamestown.	Mech.	Marine Engineer.
Eldred, Mabel DeWitt Kingston.		Instructor in Drawing, R. I. S. C.
Hammond, John Edward Jamestown.	Agr.	Farmer.
Oatley, Lincoln Nathan Wakefield.	Mech.	Contractor and builder; Coal Dealer.
Scott, Arthur Curtis Ph. D., Univ. of Wisconsin, 1902. Dallas, Texas.	Mech.	President, Scott Engineering Co., 632 Wilson Building.
Tefft, Jesse Cottrell Jamestown.	Mech.	Purser, Newport and Jamestown Ferryboat Co.
Winsor, Byron Edgar Coventry.	Mech.	Poultryman.

1896.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Brown, May (Mrs. Charles A. White). Narragansett Pier.		At home.
Greenman, Adelaide Maria (Mrs. R. Wallace Peckham) Melville Station, Newport.		At home.
Kenyon, Albert Lewis 35 Chestnut St., South Manchester, Conn.	Mech.	
Moore, Nathan Lewis Cass Venice, Florida.	Agr.	Fruit-Grower, citron culture.
Tabor, Edgar Francis 69 Doyle Ave., Providence.	Mech.	Calico Printer, U. S. Finishing Co., Silver Spring Branch.
*Williams, James Emerson	Agr.	

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* Deceased.

1897.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Carmichael, Welcome Sands Shannock.	Sci.	Bookkeeper, Providence Journal Co., Providence.
Case, Herbert Edwards Brown Ph. B., Brown University, 1900. Graduate, Hartford Theological Seminary, 1904. 14 Beacon St., Boston, Mass.	Mech.	Assistant Secretary, Foreign Department, Amer. Board of Commissioners for Foreign Missions.
Grinnell, Archie Franklin R. F. D. No. 1, Charlton, Mass.	Mech.	Draftsman, American Optical Co.
Hanson, Gertrude Maie Kingston.	Sci.	Teacher.
Hoxsie, Bessie Bailey (Mrs. E. F. Rueckert) 98 Melrose St., Providence.	Sci.	At home.
Kenyon, Albert Prentice 10 West St., Westerly.	Mech.	Bookkeeper, Maxson & Co., Westerly.
Kenyon, Charles Franklin Shannock.	Mech.	Engineer, White Bros., White Valley, Mass.
Larkin, Jessie Louise 98 Beach St., Westerly.	Sci.	Genealogist.
*Marsland, Louis Herbert	Mech.	
Tefft, Eliza Alice 1 Stanton St., Westerly.	Sci.	Teacher, East Greenwich.
Thomas, Irving Slocums.	Mech.	Designer of Patterns.

1898.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Arnold, Sarah Estelle (Mrs. R. O. Brooks) 975 East 18th St., Brooklyn, N. Y.	Sci.	At home.
Barber, George Washington Glendora, Cal.	Agr.	With Glendora Heights Orange and Lemon Growers Association.
Cargill, Edna Maria (Mrs. Lester H. Brown) 4 Highland Ave., Lonsdale.	Sci.	At home.
Case, John Peter 251 Monadnock Bldg., San Francisco, Cal.	Agr.	Mgr., San Francisco Office, Brown Hoisting Machinery Company.
Clark, William Case Wakefield.	Sci.	Secretary and Gen. Mgr. Sea-View Railroad Co. and Narragansett Pier Elec. Light and Power Co.; Mgr. Wickford Light and Water Co.
Congdon, Henry Augustus Kingston.	Mech.	Farmer.

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*Deceased.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FLAGG, MARTHA REBECCA Hardwick, Mass.	Sci.	At home.
HARLEY, WILLIAM FERGUSON 62 Hillside Ave., Providence.	Agr.	Salesman, with Messrs. Callender, McAuslan & Troup, Providence.
TURNER, HARRIETTE FLORENCE (MRS. GEO. M. TUCKER) Graduate, Drexel Institute, 1900. North Scituate.	Sci.	At home.
WILSON, GRACE ELLEN (MRS. W. F. HARLEY) 62 Hillside Ave., Providence.	Sci.	At home.

1899.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BOSWORTH, ALFRED WILLSON 6 Perry St., Boston, Mass.	Sci.	Graduate Student, Harvard University.
BROOKS, RALPH ORDWAY 975 East 18th St., Brooklyn, N. Y.	Sci.	Consulting Chemist, Bacteriologist, Microscopist, Food-Inspection Expert, 191 Franklin St., New York City.
GEORGE, LILLIAN MABELLE A. B., Univ. Ill., 1904. Graduate, N. Y. State Library School, 1910. 220 Waldron St., West Lafayette, Indiana.	Sci.	Cataloguer, Purdue University Library.
HARVEY, MILDRED WAYNE (MRS. WM. H. BLISS) 76 W. 94th St., New York City.	Sci.	At home.
KENYON, BLYDON ELLERY 228 Union St., Schenectady, N. Y.	Agr.	Draughtsman, General Electric Co.
KNOWLES, CARROLL 127 Hamilton St., Providence.	Mech.	Tool Designer, Brown & Sharpe Mfg. Co.
KNOWLES, HARRY Ph. B., Brown University, 1906. 1182 Broad St., Newark, N. J.	Sci.	Reporter, Newark Sunday Call.
LADD, MERRILL AUGUSTUS Third National Bank Bldg., Atlanta, Ga.	Mech.	Sales Agent, Supply Dept., General Electric Co.
MORRISON, CLIFFORD BREWSTER 543 Broad St., Providence.	Sci.	Chemist.
OWEN, WILLIAM FRAZIER Schenectady, N. Y.	Mech.	Engineering Department, General Electric Co.
PAYNE, EBENEZER M. D., Univ. Michigan, 1904. Glendora, Cal.	Sci.	Orange Grower.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Phillips, Walter Clarke Ph. B., Brown University, 1902. A. M., Brown University, 1903. 325 Livingston Hall, New York City.	Mech.	Graduate Student, Columbia University.
Reynolds, Robert Spink Room 314, Gen. Office Bldg., New Haven, Conn.	Mech.	Assistant Engineer, Bridge Dept., N. Y., N. H. & H. R. R. Co.
Rice, Minnie Elizabeth (Mrs. Robert J. Sherman) Exeter Hill.	Sci.	At home.
Sherman, Abbie Gertrude (Mrs. Benjamin Barton) 56 Pavilion Ave., Providence.	Sci.	At home.
*Sherman, George Albert	Mech.	
Thompson, Sally Rodman (Mrs. Lewis Balch, Jr.) Wakefield.	Sci.	At home.

1900.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Brightman, Henry Maxson 50 Church St., New York City.	Mech.	Heating and Ventilating Engineer with B. F. Sturtevant Co.
Cross, Charles Clark Detroit, Mich.	Mech.	Supt. of Inspection, Chalmers Motor Co.
Eldred, John Raleigh Kingston.	Mech.	Instructor in Mechanical Engineering, R. I. S. C.
Fison, Gertrude Sarah (Mrs. John W. Root) Malden, Mass.	Sci.	At home.
Fry, John Joseph A. B., Oberlin, 1904. Coscob, Conn.	Mech.	Principal, Coscob School.
Goddard, Edith (Mrs. Lawrence B. Reed) 10 North St., Plymouth, Mass.	Sci.	At home.
Kenyon, Amos Langworthy Wood River Junction.	Agr.	Dairyman.
Munro, Arthur Earle Ph. B., Brown University, 1902. 41 George St., Providence.	Sci.	Attorney-at-Law, 49 Westminster St.
Soule, Ralph Nelson 488 Montclair Ave., Detroit, Mich.	Sci.	
Steere, Anthony Enoch Waterloo, N. Y.	Mech.	Resident Engineer, charge Residency No. 3, New York State Barge Canal.

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*Deceased.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
STILLMAN, LENORA ESTELLE 1229 Gates Ave., Brooklyn, N. Y.	Sci.	Teacher.
TUCKER, BERTHA DOUGLASS R. F. D. No. 2, Box 105, Swansea, Mass.	Sci.	Dressmaker.
WHEELER, CHARLES NOYES 97 Garden St., Pawtucket.	Sci.	Clerk, Wm. H. Haskell Manufacturing Co.
WILSON, JOSEPH ROBERT Allenton.	Mech.	Surveyor, Alberta, Canada.

1901.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BRAYTON, CHARLES ANDREW Hope, R. F. D.	Agr.	Farmer.
BRIGGS, NELLIE ALBERTINE Providence.	Sci.	Stenographer, R. I. Hospital Trust Co.
BURGESS, CHARLES STUART 264 Sayles St., Providence.	Mech.	Draughtsman, Brown & Sharpe Mfg. Co.
CLARNER, LOUIS GEORGE KARL, JR. Arnold's Mills.	Sci.	Farmer.
DAWLEY, EDNA ETHEL Kenyon.	Sci.	Traveling for F. E. Compton & Co.
DENICO, ARTHUR ALBERTUS 40 Park Ave., Bloomfield, N. J.	Sci.	With American Telephone and Telegraph Co., Traffic Dept.
*JAMES, RUTH HORTENSE (MRS. HERBERT E. ROUSE)	Sci.	
SHERMAN, ANNA BROWN 49 Roger Williams Ave., Providence.	Sci.	Publisher.
SHERMAN, ELIZABETH AGNES 424 Mass. Ave., Boston, Mass.	Sci.	Secretary to Research Chemist, Arthur D. Little, Inc., Boston.
SMITH, HOWARD DEXTER A. M., Brown University, 1904. Ph. D., Tufts College, 1906. 14 Holden St., Lowell, Mass.	Sci.	Instructor in Chemistry, Lowell Textile School.
STEERE, ROWENA HOXSIE 98 Fifield St., Providence.	Sci.	Stenographer.
WILBY, JOHN Flat River, Missouri.	Sci.	Supply Clerk, Central Lead Co.

1902.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CLARKE, LATHAM A. M., Brown University, 1903. Ph. D., Harvard University, 1905. Boylston Hall, Cambridge, Mass.	Chem.	Instructor in Chemistry, Harvard University.

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*Deceased.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
FERRY, OLIVER NEEDHAM . . . 217 Sackett St., Providence.	Mech.	In charge of Production Dept., Maxwell-Briscoe Motor Co.
MAXSON, RALPH NELSON . . . Ph. D., Yale University, 1905. 366 Transylvania Park, Lexington, Ky.	Chem.	Professor Inorganic Chemistry, State University.
PITKIN, ROBERT WILLIAM . . . Rockville, Conn., R. F. D. No. 1.	Mech.	Farmer.

1903.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BARBER, KATE GRACE (MRS. A. L. WINTON) . . Ph. D., Yale University, 1906. 1607 Heisen Bldg., Chicago. Ill.	Gen. Sci.	Investigations in Vegetable Histology.
CONANT, WALTER AIKEN . . . Temple, N. H.	Agr.	Dairying, The Conant and Clement Farms, Hillsboro County.
GODDARD, WARREN, JR. . . . Graduate, New Church Theological School, 1907. 212 Maple St., La Porte, Indiana.	Mech.	Pastor, New Church.
KEEFER, EDITH CECILIA . . 63 West 48th St., N. Y. City.	Biol.	Teacher of Mathematics, Miss Spence's School.
KENT, RAYMOND WARREN . . A. M., Harvard University, 1904. 171 Dodge Ave., Akron, Ohio.	Chem.	Chemist, Diamond Rubber Co.
TEFFT, ERNEST ALLEN . . . 36 Pratt St., Providence.	El. Eng.	Electrical Contractor.

1904.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
BALLOU, WILLARD ALGER . . 332 Lafayette Ave., Brooklyn, N. Y.	Biol.	Instructor in Mathematics, Pratt Institute.
QUINN, MARY LOUISE . . . 71 Decatur St., Cumberland, Md.	Biol.	Teacher of Science, Allegany Co. High School.
RODMAN, WALTER SHELDON . . M. S., R. I. C. A. & M. A., 1907. Wertland St., University, Va.	El. Eng.	Adjunct Professor of Electrical Engineering, University of Virginia.

1905.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
CHAMPLIN, SARAH ELIZABETH . 63 Carolina Ave., Providence.	Gen. Sci.	Bookkeeper, Burt Mfg. Co., 226 Eddy St.
DOW, VICTOR WELLS . . Hampton, Va.	High. Eng.	Draftsman, Hampton Institute.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Gilman, Jean . . . . Hampton, Va.	High. Eng.	Assistant to Director of Trade School, Hampton Institute.
Harrall, Nellie Armstrong . Graduate, Sargent School of Physical Education, 1909. Kingston.	Gen. Sci.	Instructor in Physical Training, R. I. S. C.

1906.

Arnold, Benjamin Howard . 32 Vine St., Lynn, Mass.	El. Eng.	Gas Engine Engineering Dept., General Electric Co.
Berry, Wallace Noyes . . Albuquerque, New Mexico.	El. Eng.	With Albuquerque Gas, Electric Light and Power Co.
Elkins, Marion Graham . . 10 Moody St., Amesbury, Mass.	Gen. Sci.	Graduate Student, Yale University.
Harding, Lee LaPlace . . Lyme, Conn.	High. Eng.	Instructor in Mathematics, Conn. Literary Institution, Suffield, Conn.
Keyes, Frederick George . . Sc. M., Brown Univ., 1907. Ph. D., Brown Univ., 1909. Boston, Mass.	Chem.	Instructor in Theo. Chem. and Research Associate in Research Laboratory, Mass. Institute of Technology.
Nichols, Howard Martin . 71 Federal St., Boston, Mass.	El. Eng.	Salesman, Richmond Sales Co.
Sisson, Cora Edna . . . M. S., Brown Univ., 1910. Wickford.	Gen. Sci.	Teacher.
Wilkinson, Albert Edmund . . Lyndon Centre, Vermont.	Agr.	Horticulturist, Lyndon Institute.

1907.

Barber, Arthur Houghton East Greenwich.	Mech. Eng.	In business.
Coggins, Calvin Lester . . Hoboken, N. J.	El. Eng.	Instructor in Physics, Stevens Institute of Technology.
Ferry, Jay Russell . . . 525 West 160th St., New York City.	High. Eng.	Draughtsman for Post & McCord, 44 East 23d St., New York City.
Kellogg, David Raymond . . 1559 Highland St., Columbus, O.	Chem.	Instructor in Chemistry, Ohio State University.
Kendrick, Winfield Smith . 34 Wendell Ave., Schenectady, N. Y.	El. Eng.	Sales Engineer, General Electric Co.
Lamond, John Kenyon . . M. A., Yale Univ., 1908. Ph. D., Yale Univ., 1910. 5 Stowe Ave., Middletown, Conn.	El. Eng.	Instructor in Mathematics, Wesleyan University.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Lewis, Harry Reynolds 17 Jones Ave., New Brunswick, N. J.	Agr.	Prof. Dairying and Poultry Husbandry, Rutgers College.
Macomber, Miner Sanford 50 East 41st St., New York City.	Chem.	Chemist.
Tucker, Ethel Aldrich Kingston.	Gen. Sci.	Primary Teacher, Lippitt Hill School, Hope, R. F. D.

1908.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Drew, Joseph Drake Ensley, Alabama.	Chem.	In Laboratory, Tenn. Coal, Iron & R. R. Co.
Field, Clesson Herbert C. E., Lehigh Univ., 1909. 3719 Locust St., Phila., Pa.	Civ. Eng.	With Designing and Estimating Dept., Schuykill Bridge Works.
Fiske, Herbert Andrew 24 South Elm St., West Lynn, Mass.	El. Eng.	With General Electric Co.
Gardiner, Robert Franklin 1407 Chapin St., Washington, D. C.	Chem.	Asst. Chemist, Bureau of Soils, U. S. Dept. of Agriculture.
Gory, Edward Allen 312 Shawmut Ave., Boston, Mass.	El. Eng.	Electrical Repair Work.
Kenyon, Susan Elnora (Mrs. Fred K. Crandall) Westerly.	Biol.	At home.
Mitchell, Clovis William 248 Montauk Ave., New London, Conn.	Civ. Eng.	Teacher, Mathematics and Science, Manual Training High School.
Rose, Orpha Lillie Peace Dale, R. F. D.	Gen. Sci.	Teacher.
Sheldon, George Ware 6039 Hoeveler St., Pittsburgh, Pa.	El. Eng.	Student Apprentice, Westinghouse Electric Co.
Sherman, Mary Albro Lehigh Hill, Portsmouth.	Agr.	Teacher, R. F. D., West Kingston.
Smith, John Lebroc Wakefield.	El. Eng.	Instructor in Science, Cranston High School.
Whipple, Lucius Albert Greenville.	Civ. Eng	Teacher, Mathematics and Physical Science, High School, Pawtucket.

1909.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Cargill, Rhobie Lucelia Abbott Run.	Appl. Sci.	Teacher of Science and Mathematics, High School, 51 School St., Groveland, Mass.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Craig, James McIntyre Arsenida de Mayo, 605 Buenos Aires, Argentine.	Agr.	Gardener.
Crandall, Fred Kenyon R. F. D. No. 1, Westerly.	Agr.	Farmer.
French, Henry Frank 81 Park St., Lynn, Mass.	El. Eng.	Research Engineer, General Electric Co.
Howe, Albert Mendel 741 Pleasant St., Brockton, Mass.	El. Eng.	Asst. Stock Inspector, Bay State St. Ry. Co., Campello.
Knowles, Walter 127 Hamilton St., Providence.	Civ. Eng.	Construction Dept., N. Y. N. H. & H. Railroad.
Lee, Alfred Rogers Washington, D. C.	Agr.	Junior Animal Husbandman, in Poultry Investigations, Bureau of Animal Industry, U. S. Dept. of Agriculture.
Moran, Walter John 299 West Main St., Waterbury, Conn.	Civ. Eng.	Civil Engineer, N. Y., N. H., & H. R. R. Co.
Moyer, Louis Earl Seneca Falls, N. Y.	Civ. Eng.	Dept. State Engineer, Barge Canal Office.
Rockwell, Ruby Belle North Bennington, Vermont.	Chem.	Instructor in Mathematics, High School.
Smith, Elmer Francis Essex Fells, New Jersey.	El. Eng.	Head of Science Dept., and Athletic Coach, Kingsley School.
Tisdale, Harry Robert Mass. Inst. Technology, 1911, Box 263, New London, Conn.	Chem.	Chemist, Brainerd & Armstrong, Silk M'f'rs.
Tucker, Ellen Capron Kingston.	Gen. Sci.	Student, R. I. State Normal School.

1910.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Burgess, Paul Steere 310 E. Green St., Champaign, Ill.	Chem. Eng.	Graduate student, University of Illinois.
Carpenter, Randolph Haywood 165 Broadway, New York City.	El. Eng.	In Sales Dept., Westinghouse Electric & Mfg. Co.
Cummings, Robert Winthrop 452 Appleton St., Holyoke, Mass.	Mech. Eng.	With Deane Steam Pump Co.
Goodale, Ralph Waldo 24 College St., New Haven, Conn.	Civ. Eng.	With N. Y., N. H. & R. R. Co.
Hardy, John Ira Knoxville, Tenn.	Gen. Sci.	With State Experiment Station, University of Tennessee.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Heath, Bertha May Lunenberg, Mass.	Agr.	Teacher, Kingston, R. I.
Kenyon, Amos Harris 67 Prince St., Pawtucket.	El. Eng.	Asst. Traffic Chief, American Tel. & Tel. Co.
Lamond, Helen Scott Usquepaug.	Gen. Sci.	Teacher, Kenyon.
Mounce, Leroy Leidman Pocantico Hills, N. Y.	Agr.	
Peabody, George Abbott 310 Clinton St., Schenectady, N. Y.	El. Eng.	Electrical Test Engineer, with General Electric Co.
Sherman, John Leland Mansfield, Mass.	Agr.	Farmer.
Smith, Hiram Jameson 200 Park Ave., Woonsocket.	Civ. Eng.	In Engineering Dept., Grand Trunk Railway System.
Wagner, Albert Frederic 21 University St., Lafayette, Indiana.	El. Eng.	Instructor in Electrical Measurements, Physics Dept., Purdue University.
Wheeler, Richard Howes Box 982, Schenectady, N. Y.	El. Eng.	Electrical Test Engineer, with General Electric Co.
Worrall, David Elbridge M. A., Harvard Univ., 1911. Guantanamo, Cuba.	Chem.	Chemist, Solidad Estate, Guantanamo Sugar Co.

1911.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Andrews, Carmen Nichols Slocum.	Appl. Sci.	Teacher.
Angilly, Charles Enoch, Jr. Manila, P. I.	Civ. Eng.	Third Lieutenant, Philippine Constabulary.
Easterbrooks, Harold Arnold 280 Benefit St., Providence.	Biol.	
Easterbrooks, Louis Church 280 Benefit St., Providence.	Agr.	With F. Macrea & Sons, Florists, 1178 Smith St.
Gilchrest, Clyde Ronald Bachelor Hall, Wilkinsburg, Pa.	Elec. Eng.	
Harris, Burton Kenneth Lime Rock.	Chem. Eng.	Sales Agent and Chemist for Lime Manufacturer.
Healy, Patrick Joseph Mahwah, New Jersey.	Agr.	Head Gardener, with H. O. Havemeyer.
Kent, Robert Willard 48 Eden Park, Quincy, Mass.	Mech. Eng.	Draftsman, Fore River Shipbuilding Co.
Minor, Arthur Jacob Concord, N. H.	Civ. Eng.	In Maintenance of Way Dept., Boston & Maine R. R.
Neal, William Thomas Walton, New York.	Agr.	Proprietor Tripp Greenhouse Company.

NAME AND ADDRESS.	COURSE.	OCCUPATION.
Robinson, Benjamin Rowland 23 Linden St., Bayonne, New Jersey.	Mech. Eng.	Testing Dept., Experimental Oil Burning, Babcock & Wilcox Co.
Ruprecht, Rudolf William . Amherst, Mass.	Appl. Sci.	Asst. Research Chemist, Agr. Experiment Station.
Safford, Howard Albert . . . 113 Providence St., Providence.	Agr.	
Tucker, Harriet Taber . West Kingston.	Gen. Sci.	Teacher.
Wade, Ceylon Raymond . 921 Howard Ave., New Haven, Conn.	Civ. Eng.	With N. Y., N. H. & H. R. R.

Advanced Degrees.

MASTER OF SCIENCE.

1907.

Rodman, Walter Sheldon (B. S., R. I. State College, 1904). University of Virginia.	Adjunct Professor of Electrical Engineering, University of Virginia.

1910.

Whiting, Albert Lemuel (B. S., Mass. Agr. College, 1908).	Graduate Student, University of Illinois, Urbana, Illinois.

1911.

Hammett, Frederick Simons (A. B., Tufts College, 1908) Kingston.	Assistant, Chemistry Div., Experiment Station, Rhode Island State College.

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